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Reflection[®] Suite for TCP

Installation and User Guide

▲ W I N D O W S

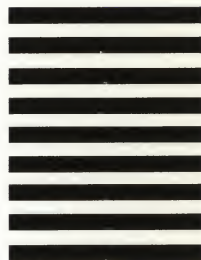


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1 Types and quantities of host computers in use at your location:

-QTY-

VAX/VMS _____
 VAX/ULTRIX _____
 HP MPE _____
 HP UNIX _____
 Other UNIX _____
 IBM AS/400 _____
 IBM Mainframe _____
 IBM RS6000 _____

3 Types of networks operating at your site (check all that apply):

☐ Microsoft LAN Manager
☐ Pathworks
☐ Novell
☐ 3Com
☐ Ungermann-Bass
☐ Hewlett-Packard
☐ Banyan
☐ TCP/IP Type _____
☐ Other Type _____

4 Do you use other terminal emulation products?

☐ Yes
☐ No
 If yes, what products?

5 Would you like to receive notification of version updates and new products?

☐ Yes
☐ No

6 Your Reflection® Series Software serial number:

2 Types and quantities of desktop computers in use at your location:

-QTY-

DOS _____
 MS-Windows _____
 Macintosh _____
 OS/2 _____
 Other _____

 **Reflection**

Version 4.5



Reflection[®] Suite

for TCP

Installation and User Guide

▲ W I N D O W S

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Reflection Suite for TCP *Installation and User Guide*

Version 4.5

February 1995

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Getting Started

The Reflection Suite for TCP is a suite of connectivity software products from Walker Richer & Quinn that combines TCP/IP networking services with VT-series terminal emulation. The suite includes all the software you need to establish Telnet network connections to VMS and UNIX host computers, transfer files using the high-speed Internet-standard File Transfer Protocol (FTP), and perform many other network-related operations.

This section of the *Installation and User Guide* explains how to install the Reflection Suite for TCP software and provides basic information about the products in the suite. The installation information in this guide is specific to the Reflection Suite for TCP, and is not found in the other manuals in this package. This section also contains information about server-based installation of the software, including server-based installation of the TCP/IP networking services provided with this package; server-based networking is a feature of the Reflection Suite for TCP not found in the stand-alone component products that comprise the suite.

Other sections in this guide explain how to establish host connections and use the networking applications and utilities included with the Reflection Suite for TCP.

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Introduction to the Reflection Suite for TCP

The Reflection Suite for TCP combines, in one package, fast, reliable TCP/IP connections with high-quality VT-series terminal emulation. An integrated Setup program makes it easy to install and configure all the software you need on your PC for both networking and terminal emulation.

The Reflection Suite for TCP includes the following products:

The TCP Connection

The Reflection Network Series TCP Connection provides Microsoft Windows-based TCP/IP software and a Windows Sockets interface to support Reflection products for Windows and other Windows Sockets-compatible applications. Along with host connections in Reflection, you can have simultaneous access to PC local area networks such as Novell NetWare, LAN Manager, or Windows for Workgroups.

The TCP Connection also includes a variety of utilities and services, such as: FTP Client, for quickly moving files between your PC and an FTP server using the high-speed Internet-standard File Transfer Protocol (FTP); LPR, a line printer requester that gives you access to printers on other machines on the network, and; Ping, to help diagnose network problems.

Reflection 2 for Windows

Reflection 2 for Windows is a connectivity product that lets you use your PC running Windows to connect to a host computer using the Telnet protocol and the TCP Connection (among other connection types).

With Reflection 2, you can communicate with a VMS or UNIX host computer just as if you were using a VT-series terminal, and maintain a host connection while running other Windows applications. Reflection 2 lets your PC *emulate*, or operate like, a Digital Equipment Corporation VT320, VT220, VT102, VT101, VT100, or VT52 text terminal.

This *Installation and User Guide* explains how to install the Reflection Suite for TCP and get started with the applications and utilities included. For more detailed information on using the component products of the suite, see the Reflection Network Series *Technical Reference*, which documents the TCP Connection, and the Reflection 2/Reflection 4 *Technical Reference*, which documents Reflection 2 for Windows.

What You Should Know

This guide assumes you know the basics of using Microsoft Windows: what *windows* are, how to *choose* menu commands and *select* text, how to *drag* and *click* with the mouse, and other standard Windows procedures. For help with any of these topics, refer to your Microsoft Windows documentation.

To establish connections using the products in the Reflection Suite for TCP, you must also know the settings the host computer requires. For example, you need to know the host computer's network address or name, and the settings the host requires for a terminal session.

Where To Go From Here

If a system administrator has already installed and configured the Reflection Suite for TCP on your PC, you can skip the next chapter and proceed to Chapter 3, where this guide explains how to use the applications and utilities included in the suite.

If you need to install and configure the software yourself, proceed to the next chapter, "Installing the Reflection Suite for TCP."

The section below contains brief descriptions of the icons that appear in the Windows Program Manager once the Reflection Suite for TCP is installed.

Icons in the Reflection Suite for TCP

After the Reflection Suite for TCP is installed, you'll have a Program Manager group called "Reflection," which contains the icons for the applications and utilities included in the suite. Many of the applications and utilities are described in other parts of this guide; those listed below without a page reference are described in the Reflection Network Series *Technical Reference*.



Reflection 2

The Reflection 2 icon starts Reflection 2 for Windows, the application you use to connect to VMS and UNIX hosts as a Digital VT-series terminal. To start Reflection 2, double-click this icon. Reflection 2 is explained in detail starting on page 45.



RNS

Typically, you won't have to start the Reflection Suite for TCP networking software by double-clicking this icon. Instead, you'll see this icon appear on your desktop when you start an application that causes the networking software to be loaded into memory.



Network
Configuration

Network Configuration is a configuration application that lets you modify settings you specified when you ran Setup. You can also configure additional settings that are not available through the Setup program. The Network Configuration utility is described on page 163.



Network
Statistics

Network Statistics is a system manager utility for viewing statistics for the Reflection Network Series protocols.



Event Viewer

Event Viewer is a system manager utility for viewing a log of Reflection Network Series events. Event Viewer is described on page 171.



Network Trace

Network Trace is a system manager utility that captures a network trace to a binary file. The trace file can then be used to help troubleshoot network problems.



Ping

Ping is a network diagnostic tool you can use to verify the operation of another node on the network. Ping is described on page 159.



FTP Client

Reflection FTP Client is a file transfer application that allows you to transfer files using the high-speed Internet-standard File Transfer Protocol (FTP). It provides both drag-and-drop controls and traditional FTP commands. FTP Client is described on page 143.



FTP Server

FTP Server lets you make your PC files accessible to others on the network via the FTP file transfer protocol. It includes security and control support, activity logging, and other management features.



LPR

LPR is a line printer requester you can use to send printouts to printers attached to other nodes on the network. LPR is described on page 153.

The Reflection Suite for TCP also includes support for LPD, which allows you to configure a locally attached printer as a network printer. Use the Network Configuration utility to configure LPD; see the Reflection Network Series *Technical Reference* for more information.

Installing the Reflection Suite for TCP

The Reflection Suite for TCP comes with a Windows-based Setup program that helps you get started with a minimum of additional configuration. You must use the Setup program to install the software; the files are compressed and you cannot simply copy them to your hard disk and run them.

This chapter explains the equipment requirements for the Reflection Suite for TCP, how to run the Setup program to install the software (including instructions for server-based installations), and how to choose options during Setup. If a system administrator has already installed and configured the software for you, you can skip this chapter.

What You Need

The Reflection Suite for TCP is for networked PCs running Windows 3.1 or higher in enhanced mode—real and standard modes are not supported. The basic equipment requirements are:

- ▲ An Intel 80386 computer or higher with at least 4 megabytes (MB) of memory.
- ▲ A hard disk or network server, and at least one floppy disk drive.
- ▲ A network card (Ethernet or Token-Ring) that has a driver configurable for an ODI or NDIS multi-protocol interface. (Serial Line Internet Protocol (SLIP) is also supported, and requires a serial port and modem; the *Reflection Network Series Technical Reference* explains SLIP connections in detail.)
- ▲ A display adapter supported by Windows.
- ▲ 500–700 kilobytes (KB) of temporary disk space to run the Setup program.
- ▲ At least 10 MB of free disk space to perform a complete installation.
- ▲ A mouse is recommended for working in the Windows environment.

Setup Summary

The Reflection Suite for TCP Setup program installs both the TCP Connection and Reflection 2 for Windows. The Setup program can perform a complete installation of the software onto your PC, or it can perform a server installation, in which all of the suite software is installed onto a network server, and system configuration files on your PC are created or modified to run the server version. If you have the appropriate license, the server version allows multiple users to run the same copy of the software at the same time.

After running Setup, you must exit Windows and reboot your PC. Setup gives you the opportunity to do this; if you choose not to reboot when prompted by the Setup program, remember that you must reboot to have the changes made by Setup take effect (in some cases when performing a server installation, you may need to manually make changes to your system files before rebooting, and Setup will not offer to reboot your PC automatically). When you reboot, look at the confirmation messages that appear on your screen, and make a note of any error messages that appear.

After restarting Windows, you can begin using the applications and utilities included in the Reflection Suite for TCP. Do *not* run DOS-based protocol software (for example, the STARTNET.BAT file that loads the Reflection Network Series for DOS software) before starting Windows.

Upgrading from Other TCP/IP Network Software

The Setup program checks for the presence of Windows Sockets software that conflicts with the networking software of the Reflection Suite for TCP. If a copy of WINSOCKET.DLL is found in a location that would prevent the Reflection Suite for TCP version of this file from being used, Setup warns you that you must remove or rename that copy of WINSOCKET.DLL.

After finishing Setup, check to see if you're loading TCP/IP software before you start Windows. For example, another TCP/IP stack may be a TSR loaded from AUTOEXEC.BAT (or another batch file) that is invoked as part of your bootup process; for example, the STARTNET.BAT file used by the Reflection Network Series for DOS software.

The Reflection Suite for TCP DLLs will not load properly if other TCP/IP software is loaded before you start Windows; you will receive error messages from the TCP Connection if a conflict occurs when loading. The Setup program does not detect third-party TCP/IP stacks and does not prompt you to remove them from your start-up procedure—you must perform this step yourself.

Complete Installation for a Single PC

This procedure guides you through the Setup program for a complete installation of the Reflection Suite for TCP on a single PC. For instructions on installing a server version, see page 24.

Before starting the installation, you may want to fill out the appropriate configuration form at the back of this manual for the type of network configuration you need (ODI or NDIS). Consult your system administrator for the required information.

To install the Reflection Suite for TCP from the distribution disks, follow these steps:

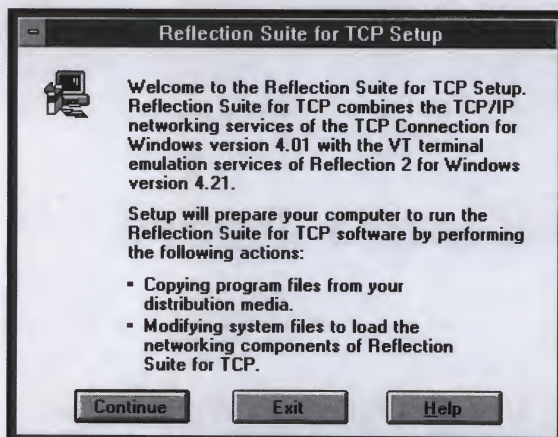
1. Start Microsoft Windows.

You can also run the Setup program from the DOS prompt; Setup starts Windows and then proceeds with the installation.

2. Insert the first disk in drive A or B.
3. Choose Run from the Windows Program Manager File menu.
4. In the Command Line text box, type `A:\SETUP` or `B:\SETUP` and press **Enter**.

The Setup program runs full-screen. If you need access to another application during Setup, click the minimize button or use **Alt-Tab**.

5. Setup starts with the following dialog box:

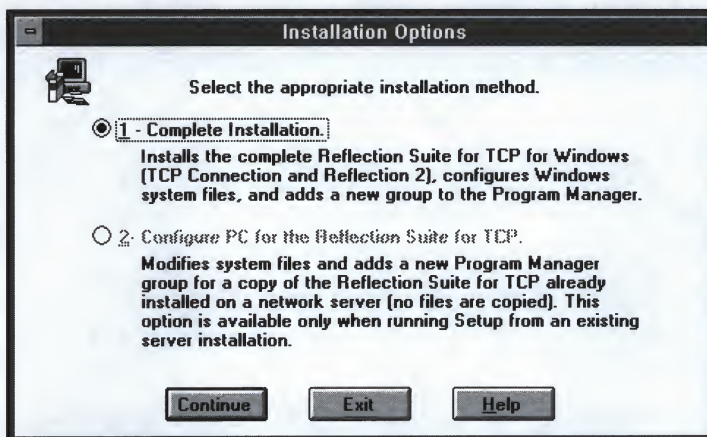


Most of the Setup dialog boxes have three buttons:

Continue	Proceeds with the installation
Exit	Exits Setup (you are prompted for confirmation)
Help	Displays help for a topic

Choose Continue to proceed with the installation.

6. The next dialog box asks whether you want to perform a complete installation, or just configure a PC workstation for a server installation:



To install all of the software onto your PC, choose the Complete Installation option—the only option available—then choose Continue to proceed. (The Configure PC option is available only if you are configuring your PC from a version of the suite already installed on a network server.)

7. Setup next asks you to enter the directories for your Reflection Suite for TCP software. The directory \WRQNET is the default for the TCP Connection software; the directory \RWIN is the default for the Reflection 2 software.

If you already have a copy of the TCP Connection installed, the directory for your existing software is proposed as the default. For easier file maintenance, and to avoid consuming excessive disk space, it's best to accept the suggested defaults.

In general, when performing a complete installation on a single PC, you should install both the TCP Connection and Reflection 2 to the local hard drive. If you install the software to a network drive, you may need to manually change some system files before using the Reflection Suite for TCP software; page 29 describes these changes.

8. If Setup detects an existing ODI or NDIS network driver already in use, a message box tells you that the current driver will continue to be used.

If you do not have one of these drivers installed, a dialog box asks you to choose between ODI or NDIS. See page 14 for more information about ODI vs. NDIS.

9. After specifying the type of network, Setup tells you that it may need to modify your system files (AUTOEXEC.BAT, SYSTEM.INI, and so on). Then it copies the required files to your hard disk, prompting for each disk as it's needed.
10. When Setup has finished copying files, you're asked to specify the type of keyboard you have. This information is used to provide accurate keyboard mapping in Reflection 2. Selecting an option here allows you to use either a standard PC keyboard, or a Digital Equipment Corporation keyboard while working in Reflection. Select a Digital keyboard only if you have one connected to your PC.
11. Next, Setup asks for some information about your existing network configuration:
 - ▲ The type of driver for your network adapter card; Setup lets you choose from a list of network interfaces. See page 15.
 - ▲ Whether you use a Novell NetWare file server. See page 19.

12. You're then asked to provide TCP/IP configuration information. See page 21 for more information about these settings.
13. After supplying the required information, you're asked to name the Windows program group that will hold your Reflection Suite for TCP icons. The default name is "Reflection."

(If you already have the Reflection Network Series software for Windows installed on your PC, you may want to delete that program group when you're done with Setup; the Reflection Suite for TCP Setup installs the Reflection Network Series icons into the Reflection program group instead.)

14. Finally, Setup configures your system files—AUTOEXEC.BAT, CONFIG.SYS, SYSTEM.INI, WIN.INI, REFLECT.INI, and PROTOCOL.INI or NET.CFG—for any changes needed. A dialog box shows you which files were changed, and the names used to back up your old versions.
15. As the last step of Setup, you can choose to reboot your PC or simply exit the Setup program. Before you can use the Reflection Suite for TCP software, you must reboot your PC; this causes the changes made during Setup to take effect. (In some installations, the reboot button may not be provided; see page 29 for more information.)

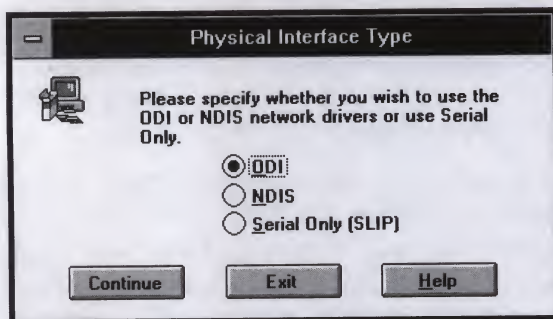
When Setup is done, you'll have a new program group on your desktop, containing the icons for the applications and utilities included with the Reflection Suite for TCP. The icons are described briefly on page 5.

Setup Topics

The following topics explain more about the network configuration information you may need to provide during Setup.

Choosing an Interface: ODI, NDIS, or Serial

If you do not already have an ODI or NDIS environment configured on your PC, you are prompted to choose a network type or a Serial Line IP (SLIP) interface (SLIP is explained in detail in the Reflection Network Series *Technical Reference*):



The default is ODI. ODI is a standard interface to a network adapter driver written by Novell. NDIS is Microsoft/3Com's Network Driver Interface Specification. Both of these interface specifications allow multiple network protocols to share the same network card.

If you are using a network card and are already operating in an ODI or NDIS environment, Setup assumes you want to continue using this environment and does not prompt you with the above dialog box.

In many cases, other parts of your network environment determine which of these interfaces you should use.

You should choose ODI if:

- ▲ You need to support Novell NetWare diskless workstations.
- ▲ NetWare is the only network operating system in your environment.

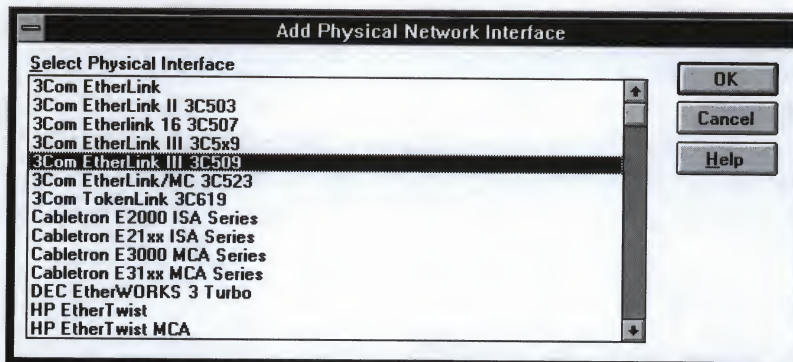
You should choose NDIS if:

- ▲ You want to use LAN Manager or Windows for Workgroups 3.10 with NetBEUI transport. (With Windows for Workgroups 3.11 and higher, both NDIS and ODI are supported.)
- ▲ You have an older network card that does not supply an ODI driver.

If you choose NDIS as your network interface, and you choose to install the TCP Connection to a network drive, you must make some manual changes to your system files before you reboot and can use the Reflection Suite for TCP software; these changes are explained on page 31.

Selecting a Network Interface

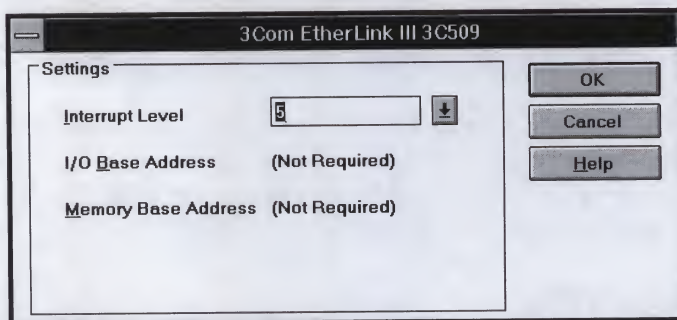
After answering questions about your interface type, you'll be prompted to select a network interface card.



If the Setup program detects a network interface card that is already installed and configured on your system, this card is automatically highlighted as the default. If no card driver is highlighted, select one for your network adapter card from the network interface list.

In most cases, the driver for the card you select is included with the Reflection Suite for TCP. In some cases, the driver is not supplied—in this case, a prompt asks you to locate the driver; type in the drive and directory where the driver is located.

After you have selected a network card in the Network Interface dialog box, configuration defaults for that card are displayed (if you already have a card configured for an ODI environment, you can bypass this step and simply accept the current network card configuration on your PC):



Some of the fields in the dialog box may not have any entries if your card does not require them. Some cards require additional settings; if so, the default setting is automatically added to the initialization file (NET.CFG or PROTOCOL.INI).

Check the IRQ (or Interrupt) setting for your card before you run Setup. In most cases, you'll only have to confirm that the default value is correct. The setting on your PC may have been changed to avoid an IRQ conflict (for example, IRQ 3 is used for many network cards; it is also the IRQ for the COM2 serial port). Your system administrator may be able to tell you if any network card defaults have been changed.

Interrupt Level

The interrupt setting for the card. Many cards have a default, but you may need to assign a different value. Use the scroll bar to see the other possible interrupt assignments for this card.

In an NDIS environment, an interrupt level value must be specified even though the card does not have a default.

I/O Base Address

If used by your card, a default value is assigned. Use the scroll bar to see the other possible address assignments for the card. If an I/O base address is not used by your card, this item is unavailable.

Memory Base Address

If used by your card, a default value is assigned. Use the scroll bar to see the other possible address assignments for this card. If a memory base address is not used by your card, this item is unavailable.

Setting Up Other Cards

If your network card does not appear in the network interface list, you must locate the appropriate driver and settings information before proceeding. Your network card manufacturer provides a variety of drivers with the network card; sample settings may be available in a text file. Also, many drivers are provided on the Unsupported Drivers disk shipped with the Reflection Suite for TCP. For ODI, use the default card settings listed in NETCFG.SAM. For NDIS, use the default card settings listed in PROTOCOL.SAM.

To configure a network card that is not listed, select Other Interface from the list in the Physical Interface dialog box. The Other Network Card dialog box opens:

Other Network Card

Card Driver Filename

Card Section Title

Card Section Contents

OK

Cancel

Help

IRQ Value

Card Type

☒ Ethernet ☐ Token Ring

Card Driver Filename

Type in the name of the network card driver. Most NDIS driver filenames have the extension .DOS; most ODI driver filenames have the extension .COM. You don't have to provide the path for the driver here; you'll be prompted for it as one of the final configuration steps.

If you already have a card configured but it is not among those directly supported by Setup, you may only need to provide the driver name.

Card Section Title

Type in the string that identifies your card in a PROTOCOL.INI or NET.CFG file. Any sample PROTOCOL.INI or NET.CFG file (either from WRQ or from your network card manufacturer) provides the card section title. In the case of a sample PROTOCOL.INI, the card section is probably enclosed in brackets, such as:

```
[ETHERLINK3]
```

In the case of a sample NET.CFG, you may see a line similar to the following:

```
Link Driver 3C509
```

In this case, the appropriate string is 3C509—you don't need to include "Link Driver."

Card Section Contents

Any settings such as interrupt level, I/O base address, or memory base address required by your network card should be entered here.

If your card is among those included in the sample files PROTOCOL.SAM (NDIS) or NETCFG.SAM (ODI), or you have access to a sample PROTOCOL.INI or NET.CFG file from your network card manufacturer, leave the Reflection Suite for TCP Setup window (press **Alt-Tab**), use an editor or Notepad to open the file, and copy the appropriate lines to the Clipboard. Then return to Setup and use **Ctrl-V** to insert the Clipboard contents into the Section Contents window.

IRQ Value

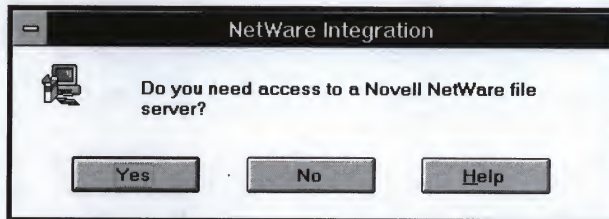
For an NDIS environment, you must indicate the IRQ value for the card. A corresponding /IRQ switch must be added to the line in AUTOEXEC.BAT that loads RNDIS.EXE.

Card Type

Indicate if this is an Ethernet or Token-Ring card.

Telling Setup if You Use Novell NetWare

If Setup does not detect Novell NetWare already running on your PC, Setup asks if you want to configure your PC to allow access to a NetWare server:



Configuration for NetWare differs according to whether you selected ODI or NDIS as your network configuration (as described above). Support for IPX, the protocol used by NetWare, is available with both ODI and NDIS drivers.

If you're using ODI:

For an ODI environment, the IPXODI.COM file that ships with the Reflection Suite for TCP is the same as an IPXODI.COM file that you may find on a NetWare disk—WRQ has not performed any special customization.

The Setup program copies IPXODI.COM into your TCP Connection directory, adds appropriate configuration information to NET.CFG, and confirms that IPXODI is run when you boot the PC.

If you already have a copy of IPXODI.COM provided by Novell on your machine, you can continue to use it.

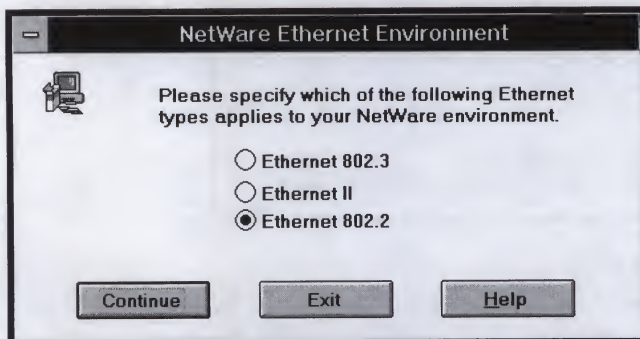
If you're using NDIS:

For an NDIS environment, the IPX.COM that ships with the Reflection Suite for TCP is *not* the same as the IPX.COM created with Novell's WSGEN program—WRQ has customized this file to work with the Reflection Suite for TCP driver support.

The Setup program copies IPX.COM into your TCP Connection directory and modifies AUTOEXEC.BAT so that IPX is run when you boot the PC.

If you're using Ethernet:

After you've answered some questions about your network card, you'll be asked to select an IPX packet type:



Some NetWare environments on an Ethernet network are set up to run over Ethernet Version II rather than the NetWare default of 802.2 (the default for more recent versions of NetWare with ODI; you may also be using 802.3, the previous NetWare default).

If possible, Setup determines how an existing IPX program is configured and uses that configuration as the suggested default. If you don't know the answer, just choose the default displayed here or contact your system administrator for instructions.

Configuring TCP/IP Settings

Several basic settings are required for installing the TCP/IP portion of the Reflection Suite for TCP. Fill in the values in the Basic TCP/IP Settings dialog box:

Basic TCP/IP Settings

IP Addresses

IP Address: 123.123.26.26

Subnet Mask: 255.255.0.0

Default Gateway: 123.123.23.100

Domain Name Server: 123.123.23.7

Names

PC Host Name: simpson

PC Domain Name: mfg.com

Path to Hosts File

C:\WRQNET

Your system administrator should provide you with the information you need to enter in this dialog box.

You can perform additional TCP/IP configuration after you have finished running Setup; see the Reflection Network Series *Technical Reference* for more information.

IP Address

The Internet address, or "IP address," identifies a PC on a TCP/IP based network. This field is required, and each machine on the network must have a *unique* IP address.

If your network is part of the worldwide Internet, your site has been assigned a range of addresses for your network.

Subnet Mask

Networks that require further partitioning use subnet masks to perform subnet routing. Do not modify this information unless you have subnet routing implemented on your network.

These values indicate which part of your IP address is a network address and which part is the node address. The mask that is displayed is based on the PC Internet address you specified. The network portion of the address is represented by the decimal value 255. The host (local) portion of the address is (by default) represented by the decimal value 0; these are the fields you can modify for subnetting.

Default Gateway

This is the IP address of a default gateway on your logical network. A TCP/IP gateway (also called a router) allows you to communicate outside your local network or subnet by forwarding information to another network. The gateway must be on your logical network; the network portion of this address should be the same as the network portion of your IP address.

Without this address, you still have all communication and file transfer capabilities with the hosts on your local network. This field is required only if you need to reach hosts that are not on your local network.

You can specify more than one gateway using the Network Configuration utility after you have finished installing the Reflection Suite for TCP; see the Reflection Network Series *Technical Reference* for details.

Domain Name Server

A domain naming system maps descriptive host names to IP addresses. This is the IP address of the domain name server database that resolves host names to IP addresses. Don't specify a domain name server address unless you use one at your site.

Sites that do not use a domain name server may use a Hosts file to map names to IP addresses.

You can specify more than one domain name server using the Network Configuration utility after you have finished installing the Reflection Suite for TCP. Using Network Configuration to add a domain name server, and to modify the Hosts file, is explained in “The Network Configuration Utility,” starting on page 163; see the Reflection Network Series *Technical Reference* for more information.

PC Host Name and Domain Name

The PC Host Name and the PC Domain name define the name of your PC for Domain Name Services (if used on your network).

▲ PC Host Name

The PC Host Name you provide is a Domain Name Service (DNS) identifier for your PC. This name is used by some TCP/IP applications and utilities to identify your PC on the network, and must be unique within the domain. This setting is case sensitive.

▲ PC Domain Name

If you're using domain name services, this is a node name that fits into the DNS naming scheme on your network.

Path to Hosts File

This is the location of your Hosts file, if you use one. You can use the Browse button to search for your Hosts file if it is already present in another directory on your PC.

A sample Hosts file, HOSTS.SAM, is copied to your TCP Connection directory during Setup. See page 164 for information about modifying the Hosts file using the Network Configuration utility. The default location of the Hosts file is \WRQNET.

Installing a Server Version of the Reflection Suite for TCP

This section is provided for the system administrator who must set up and configure a server version of the Reflection Suite for TCP for network users. If an administrator has already installed the software on the server but has not configured your PC to use that software, page 27 provides instructions for configuring the PC.

Installing a server version of the Reflection Suite for TCP consists of two parts: performing a complete installation onto a network server, then configuring each PC workstation to run the server-version software.

If, instead of installing a server version (which allows multiple users to run the same software simultaneously), your goal is to perform a complete installation onto each networked PC from a server drive, see page 36 for more information.

If you intend to have multiple users run the Reflection Suite for TCP software from the server at the same time, ensure that your WRQ License Agreement states that your site is licensed for the correct number of simultaneous users. If you are uncertain about what kind of license you have, or if you have questions regarding your license, contact the WRQ sales department at 800.872.2829 (in the U.S.) or your Authorized Reflection Distributor. For the name of your nearest distributor, in Europe call +31.70.375.1100; outside of Europe call the WRQ U.S. office at 206.217.7100.

Limitations of a Server Installation

When installing the Reflection Suite for TCP software onto a network server, there are a few limitations to keep in mind:

- ▲ Setup performs a server installation only when you specify network drives for both the TCP Connection and Reflection 2.

- ▲ To run the networking software of the Reflection Suite for TCP from a PC workstation, certain files must load when you boot the PC, and other files must load when you start Windows.
 - If you are configuring a PC workstation for an ODI environment, Setup can often perform the entire workstation configuration automatically. However, depending on the way in which the PC connects to the network, you may need to make some manual changes to the PC's system files (AUTOEXEC.BAT, SYSTEM.INI, etc.) before you can use the Reflection Suite for TCP software. These changes are explained on page 29.
 - If you are configuring a PC workstation for an NDIS environment, Setup will modify the PC's system files, but will not automatically reboot the PC when Setup is complete. Before rebooting, you will need to make manual changes to the PC's system files before you reboot and use the Reflection Suite for TCP software. These changes are explained on page 31.

Installing the Software onto a Network Drive

To install the Reflection Suite for TCP software onto a network drive, you must have “write” access to the destination drive on the server. Then, perform the same steps you would use for a complete installation as described on page 9, but in step 7, specify network drives as the destination paths for both the TCP Connection and Reflection 2 software. When you specify two network drives, Setup asks you to confirm that you are performing a server installation; choose Yes to proceed.

Setup does not perform a server installation if you specify a network drive for one product and a local drive for the other; a message alerts you to this.

When you perform a complete installation onto a network server, Setup copies all of the files to the destination paths, and configures the PC workstation that is running Setup to use the server version. These steps are the same as for a complete installation onto a single PC.

In addition, Setup does the following during a server installation:

- ▲ Copies the Setup files to a SETUP subdirectory in the TCP Connection path on the network.
- ▲ In the SETUP subdirectory of the TCP Connection, creates a DESTPATH.INI file, which contains the network path specification where Reflection 2 is installed. The DESTPATH.INI file is later used to configure PC workstations to run the server version.

If you, as administrator, run Setup from a network login that has different network drive mappings than users have, the Reflection 2 path will be invalid when users attempt to run Reflection 2 from the server. A warning message in Setup during workstation configuration informs you when the Reflection path is invalid, and lets you change it to the correct path. You may want to edit the DESTPATH.INI file before configuring PC workstations so that the Reflection 2 path specification is valid for all network logins.

If the Reflection 2 path remains invalid after the PC workstation is configured, Reflection 2 will have a generic DOS icon. When this happens, instruct the user to edit the path specification for Reflection 2 in the Program Item Properties dialog box from File Manager, and provide the correct path to the server version of Reflection 2. The path for the VINT14.386 driver in SYSTEM.INI also needs to be changed so this driver can load properly.

After the server version is installed, you may need to make some manual changes to the PC's system files before you can use the Reflection Suite for TCP on that PC; see page 29 for more information. After making the manual changes, you must then reboot the PC workstation running Setup to have the changes take effect on that workstation.

It's also recommended that after installing the software to a network drive, you make the server directories read-only to prevent users from modifying or deleting files that all users must share.

Configuring PC Workstations to Run the Server Version

After performing a complete installation of the Reflection Suite for TCP onto the network server, you must run a workstation Setup program from each PC that will use the server version. This creates and configures the initialization files on the PC that are required to use the server-version software.

Run the Setup program located in the SETUP subdirectory of the TCP Connection path on the network; this is a different Setup program than the one on the distribution disks, and is designed specifically to configure networked PCs.

To configure an individual PC workstation to run the server version of the Reflection Suite for TCP:

1. From the PC workstation, log in to the server and start Microsoft Windows.
2. Choose Run from the Windows Program Manager File menu.
3. In the Command Line text box, use the following syntax to start the Setup program:

```
<network TCP Connection drive and path>\SETUP\SETUP
```

This starts the Reflection Suite for TCP Setup program that was installed when you performed a complete installation onto the server. For example, a valid entry might be:

```
F:\WRQNET\SETUP\SETUP
```

4. After Setup is initialized, you'll see the welcome message box. Choose Continue to proceed with the installation.
5. The Installation Options dialog box opens. Accept the Configure PC for the Reflection Suite for TCP option—the only option available—and choose Continue.
6. Setup asks what type of keyboard you have. This information is used to provide accurate keyboard mapping in Reflection 2. Selecting an option here allows you to use either a standard PC keyboard, or a Digital Equipment Corporation keyboard while working in Reflection. Select a Digital keyboard only if you have one connected to your PC.

7. Next, Setup asks for some information about your existing network configuration:
 - ▲ The type of driver for your network adapter card; Setup lets you choose from a list of network interfaces. See page 15.
 - ▲ Whether you use a Novell NetWare file server. See page 19.
8. You're then asked to provide TCP/IP configuration information. See page 21 for more information about these settings.
9. After supplying the required information, Setup configures the PC's system files (AUTOEXEC.BAT, CONFIG.SYS, SYSTEM.INI, WIN.INI, REFLECT.INI, and PROTOCOL.INI or NET.CFG) for any changes needed to run the Reflection Suite for TCP software.
10. Finally, you're asked to name the Windows program group that will hold the Reflection Suite for TCP icons. The default name is "Reflection."

(If you already have the Reflection Network Series software for Windows installed on the PC, you may want to delete that program group when you're done with Setup; the Reflection Suite for TCP Setup installs the Reflection Network Series icons into the Reflection program group instead.)
11. When Setup is complete, exit the program. You may need to make some manual changes to the PC's system files before you can use the Reflection Suite for TCP software; the changes are explained on page 29. After making the changes, you must then reboot the PC workstation to have the changes take effect.

When Setup is done, you'll have a new program group on your desktop containing the icons for the applications and utilities included with the Reflection Suite for TCP. The icons are described briefly on page 5.

Making Manual Changes to Your System Files for a Server Installation

Depending on the type of network environment you use (ODI or NDIS), and the way you connect to the network, you may need to make some manual changes to your system files before you reboot your PC and use the Reflection Suite for TCP software.

The changes described below apply only if the Reflection Suite for TCP software is installed on a network drive and your PC is configured to run the network-installed software. If you performed a complete installation of the Reflection Suite for TCP onto a local drive, no changes are needed.

If You Use an ODI Driver

If you use an ODI network interface on your PC, Setup makes the following changes to your system files, which you may need to modify as described here:

- ▲ A line is added near the top of your AUTOEXEC.BAT file to load the RODI.EXE driver from the network drive. Therefore, you must already be logged in to the network before the RODI.EXE line is encountered. For example, the line may read:

`F:\COMMON\WRQNET\RODI /STACKS:7`
- If you don't log in to your network drive until later in your AUTOEXEC.BAT file, move the RODI line to below the lines that log you in.
- If you don't log in to your network drive from your AUTOEXEC.BAT file at all (for example, you run a separate batch file to log you in), move the RODI line to the file that does log you in, and place the line below the lines that log you in.

Alternatively, you can use the technique of copying the RODI.EXE file to your PC, as described in the following section.

- ▲ Lines are added to your SYSTEM.INI file to load the VINT14.386 and RNVNET.386 drivers when Windows starts. Therefore, you must already be logged in to the network before running Windows so these drivers can load.

If you don't log in to your network until after you start Windows, you can either change your login procedure so that you're already logged in to the network before running Windows, or use the technique of copying the files to your PC, as described in the section below.

- ▲ A path statement is added to the bottom of your AUTOEXEC.BAT file to include the TCP Connection network drive in the search path on your PC. You do not need to change this line, even if the drive in the path statement is not valid until after you log in to the network; once you log in, the network drive letter will become valid.

Copying the Startup Files to Your PC

An alternate technique you can use in any of the above situations is to copy the required startup files from the network drive to your local drive, then change the statements in AUTOEXEC.BAT and SYSTEM.INI to load the local files.

To do this, copy RODI.EXE, VINT14.386, and RNVNET.386 to the directory on your hard drive where your local area network drivers are stored, then change the lines in your AUTOEXEC.BAT and SYSTEM.INI files so that the drive letter and path refer to the new location.

For example, if you copy the three files to a local directory called \NETWORK, the line in your AUTOEXEC.BAT file might look like this after you change it:

```
C:\NETWORK\RODI /STACKS:7
```

And the lines in your SYSTEM.INI file might look like this:

```
DEVICE=C:\NETWORK\VINT14.386  
DEVICE=C:\NETWORK\RVNET.386
```

After making any of these changes, you must reboot the PC to have the changes take effect before you can use the Reflection Suite for TCP software.

If You Use an NDIS Driver

If you use an NDIS network interface on your PC, Setup makes a number of changes to your system files. Before you can use the Reflection Suite for TCP software, you must copy some files to your local PC, edit one or more of your system files, then reboot the PC to have the changes take effect.

Note: When configuring a PC workstation for an NDIS environment, Setup does not provide a reboot button in the final dialog box. You must make the changes described below before rebooting your PC. If you reboot before making the changes, you will not be able to access your network drive and you will need to restore your PC to its previous state to continue; see page 34 for information about restoring your PC. ▲

When you perform a network installation for an NDIS environment, Setup makes the following changes to your system files:

- ▲ Lines are added to your AUTOEXEC.BAT file to load the IPX.COM and RNDIS.EXE files that are installed on the network drive.

Although you probably have an IPX.COM file already present on your PC (and probably loaded from AUTOEXEC.BAT), you *must* use the customized IPX.COM file supplied with the Reflection Suite for TCP instead.

An exception to this is if you use Windows for Workgroups. In this case, Setup does not install a new IPX.COM, and you should continue to use the IPX supplied with Windows for Workgroups; in the following procedure, do *not* copy the IPX.COM file to your local drive or make any changes for IPX.COM in your AUTOEXEC.BAT file.

- ▲ Lines are added to your SYSTEM.INI file to load the VINT14.386 and RNVNET.386 files from the network drive when Windows starts.
- ▲ A path statement is added to the bottom of your AUTOEXEC.BAT file to include the TCP Connection network drive in the search path on your PC. You do *not* need to change this line, even if the drive in the path statement is not valid until after you log in to the network; once you log in, the network drive letter will become valid.

In order to load these files from a network drive, you must already be logged in to the network before these lines are encountered. However, it is not possible to load all of these files from the network (because of the order in which the files must load). You must copy the files to your local hard drive, then edit the system files to refer to the local directories instead of the network directories. To do this:

1. Using the path specifications for IPX.COM and RNDIS.EXE in the AUTOEXEC.BAT file created by Setup, locate these files on the network drive and copy them to a directory in the search path on your local hard drive.

If you use Windows for Workgroups, skip the instructions for IPX.COM in this step and in the following steps.

For example, if you have a directory in your search path called C:\NETWORK (the directory in which you store your local area network drivers, perhaps), you might copy the files to this directory.

2. After copying the files to your local drive, edit the AUTOEXEC.BAT file so that the drive and path specifications refer to the local files instead of the ones on the network. Make sure to save the file as text only.

For example, you might change the lines in your AUTOEXEC.BAT file from this:

```
F:\COMMON\WRQNET\RNDIS /IRQ:7
```

```
.  
.  
.
```

```
F:\COMMON\WRQNET\IPX.COM
```

```
.  
.  
.
```

to this:

```
C:\NETWORK\RNDIS /IRQ:7
```

```
.  
.  
.
```

```
C:\NETWORK\IPX.COM
```

```
.  
.  
.
```


3. If you don't log in to your network until *after* you start Windows, repeat the above two steps for the VINT14.386 and RNVNET.386 drivers that are loaded by SYSTEM.INI when you start Windows. First copy these files from the network drive to your local drive, then edit SYSTEM.INI so that the drive and path specifications refer to the local directories. Again, make sure to save the file as text only.

For example, you might change the lines in your SYSTEM.INI file from this:

```
DEVICE=F:\COMMON\WRQNET\VINT14.386  
DEVICE=F:\COMMON\WRQNET\RVNET.386
```

to this:

```
DEVICE=C:\NETWORK\VINT14.386  
DEVICE=C:\NETWORK\RVNET.386
```

4. Once you have copied the required files and made the changes to AUTOEXEC.BAT and SYSTEM.INI, exit Windows if necessary and reboot your PC to have the changes take effect. When you reboot, watch for any error messages to make sure that the files load correctly.

If the drivers fail to load properly and you need to restore your PC to its previous state before you can access your network, the next section explains how to do this.

Restoring Your PC if Rebooting Fails with NDIS

When you configure your PC for an NDIS environment and Setup completes, it's easiest to make the changes described in the section above *before* rebooting your PC. If you reboot first, you will not be able to access your local area network, and therefore will not be able to copy the required files from the network drive to your local drive. In this case, you can restore your PC to its previous state, copy the files from the network, make the changes to AUTOEXEC.BAT and SYSTEM.INI, then reboot.

To restore your PC to its previous state so you can access your local area network and copy the required files:

1. In the root directory of your PC, rename the AUTOEXEC.BAT file to a unique name. If you do this in File Manager, for example, use the Rename command in the File menu to change the name from AUTOEXEC.BAT to AUTOEXEC.WRQ (or to some other unique name).
2. Get a directory listing of all AUTOEXEC files and find the file with the highest numbered extension; this is the file that Setup saved your previous AUTOEXEC.BAT file as. For example, if you have a few old versions of AUTOEXEC, the latest one might be AUTOEXEC.003.
3. Rename the highest numbered AUTOEXEC file as AUTOEXEC.BAT.
4. In your Windows directory, rename your SYSTEM.INI file to a unique name; for example, to SYSTEM.WRQ.
5. Get a directory listing of all SYSTEM files and find the file with the highest numbered extension; this is the file that Setup saved your previous SYSTEM.INI file as. For example, this file may be called SYSTEM.008.
6. Rename the highest numbered SYSTEM file as SYSTEM.INI.
7. Exit Windows if necessary, then reboot your PC.

After you reboot, your PC should be in the same state it was before you ran Setup, and you should be able to access your local area network. Once you can do this, perform the procedures described on page 29, using the renamed copies of AUTOEXEC.BAT and SYSTEM.INI (the files AUTOEXEC.WRQ and SYSTEM.WRQ in this example) for the appropriate network drive and path information to modify.

Manually Configuring Your PC from the Distribution Disks

If you need to configure your PC with the above changes, and if you have access to the original Reflection Suite for TCP distribution disks, you can copy the files required for an NDIS installation from the distribution disk, then make the required changes to AUTOEXEC.BAT and SYSTEM.INI, as described on page 31.

Distribution Disk 1 contains *uncompressed* copies of the four files needed for an NDIS environment—RNDIS.EXE, IPX.COM, VINT14.386, and RNVNET.386. Unlike the other files on the distribution disks, which are compressed, you can copy these four files directly from the distribution disk to your hard drive. Once you have copied the files, you can then change the drive and path information in AUTOEXEC.BAT and SYSTEM.INI to refer to the local files. You will also need to run the ECONFIG program supplied with your network software to configure IPX for the correct network packet type; check with your system administrator for details.

Setting Up from a Network Server

If you have purchased a site license version of the Reflection Suite for TCP, you may be installing a server version that allows multiple users to run the same copy of the software simultaneously from the server; this type of installation is described on page 24.

If, on the other hand, you are performing a complete installation onto each individual PC, you can have each user install the complete version from a network server. Use the following procedure to set up the distribution software on the server:

1. Create a directory on the server for the Reflection Suite for TCP software.
2. Create subdirectories that reflect the disk numbers of the distribution disks.
Name these:

 DISK1
 DISK2
 DISK3
 DISK4
 DISK5
3. Copy the contents of distribution disk 1 to the DISK1 subdirectory, the contents of distribution disk 2 to the DISK2 subdirectory, and so on.
4. From the PC workstation, run the Setup program from the DISK1 subdirectory.

For example, if you have copied the software to an RSTCP subdirectory (for Reflection Suite for TCP) on network drive F, choose Run from the Windows Program Manager File menu, and in the Command Line box, type
`F:\RSTCP\DISK1\SETUP.`
5. When Setup asks for the directory paths for the TCP Connection and Reflection 2, specify local drive letters to perform a complete installation onto the PC workstation.

Using the Reflection Suite for TCP

To use the TCP/IP network support in the Reflection Suite for TCP, no particular steps beyond installation and configuration are required. You don't have to "start" the TCP Connection software before running Reflection 2 for Windows or another application that uses the network support of the Reflection Suite for TCP.

When you configure a Reflection session that uses Telnet, or you run another application that uses the TCP/IP protocols, the TCP Connection software starts automatically, and the RNS icon appears on your desktop:



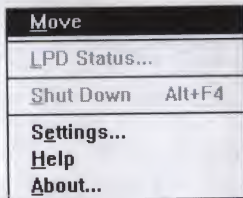
In most cases, you won't see this icon until you start a Reflection session or run a network utility that uses the TCP Connection. Similarly, you don't need to manually "shut down" the TCP Connection if an application has started it; exiting the application also shuts down the TCP Connection.

The rest of this guide explains how to use Reflection 2 for Windows with the network support provided by the Reflection Suite for TCP, and how to use some of the networking utilities included with the suite.

The information below explains more about your network configuration, and how to get help for network utilities.

Getting Help for the TCP Connection

The RNS icon on your desktop tells you that some network sessions or services on your PC are using the TCP Connection that's part of the Reflection Suite for TCP. If you need more information about how the TCP Connection is set up on your machine, single-click the RNS icon to open a short menu.



The menu contains two commands that can help you learn more about your network software: Help and About.

Choose Help from the RNS icon menu, then choose a topic in the help menu to find out more about that aspect of the TCP Connection.

There are also other ways to get help for the TCP Connection:

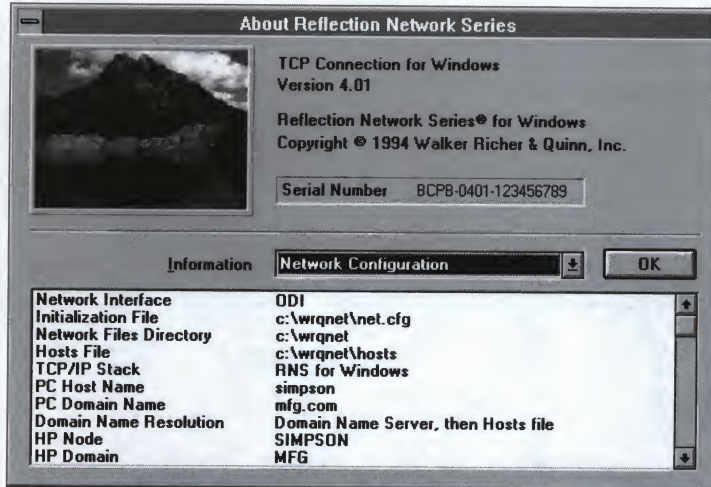
- ▲ If you don't have the TCP Connection software running, double-click the RNS Help icon in the Reflection program group.

This method of obtaining help can be useful if you have trouble establishing a network connection and don't have an RNS icon to click for help.

- ▲ When you're in a network application, such as FTP Client or LPR, press **F1** or use the Help menu in the menu bar to get help for that application.

About Your TCP Connection Configuration

To see details about how the TCP Connection is set up on your computer, choose About from the RNS icon menu. The About Reflection Network Series dialog box opens:



The upper half of the dialog box shows which Reflection Network Series product you're using (the TCP Connection, in this case), the version of the product, and the serial number. You'll be asked for this serial number if you call WRQ technical support for help.

Select an item from the Information list box to view information about that aspect of your configuration.

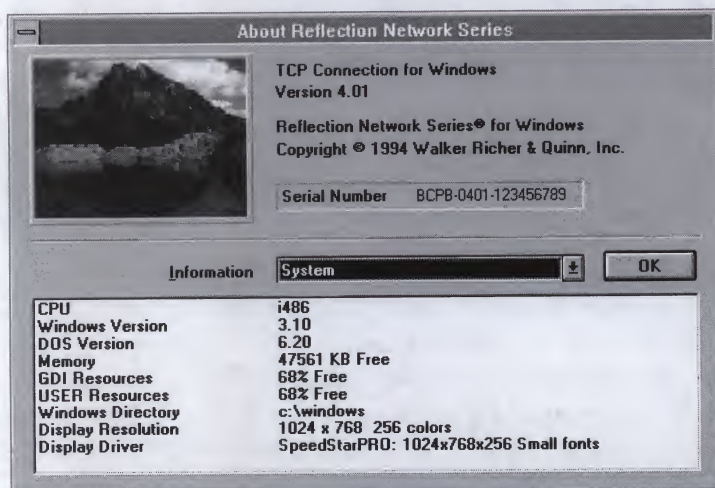
Network Configuration

When you first select About RNS, you'll see a summary of network information, as shown in the figure above.

For example, your system manager may ask you if you're set up for NDIS or ODI as your network interface—this information appears on the first line of the information box.

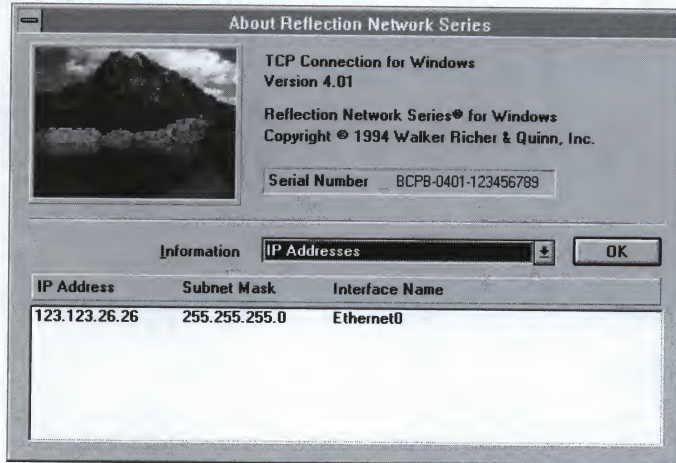
System Information

Select System from the Information list box to see general information about your PC and your Windows environment.



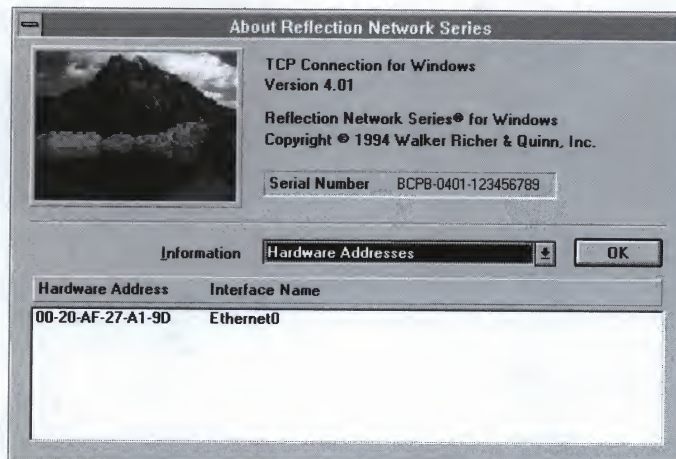
IP Addresses

Select IP Addresses from the Information list box to see the IP address, subnet mask, and interface name for your PC.



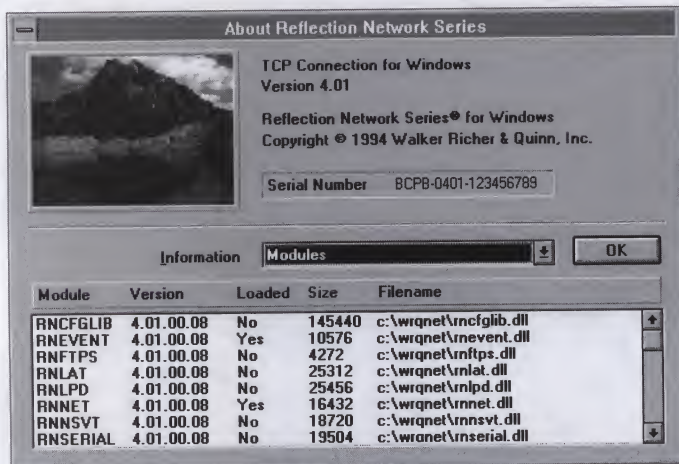
Hardware Addresses

Select Hardware Addresses from the Information list box to see the hardware address of your PC's network interface card.



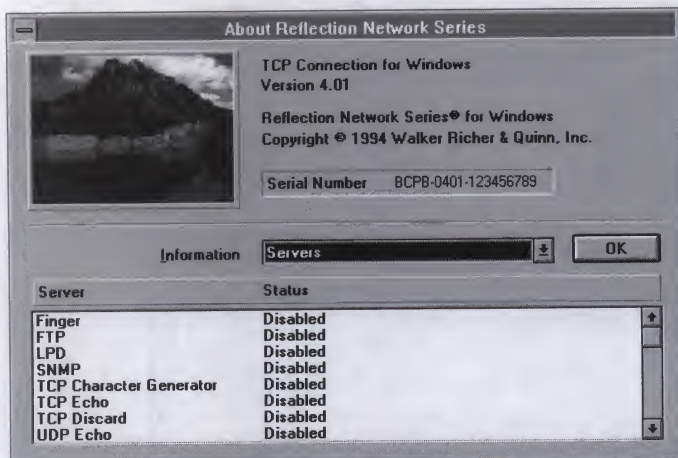
Modules

Select Modules from the Information list box to see a summary of each component of the TCP Connection, and whether that component is currently in use.



Servers

Select Servers from the Information list box to see whether a particular TCP Connection server, such as FTP Server, is running.



How to Receive Technical Support

If you can't make a connection to your host or PC network server, or if you're having trouble with one of the applications or utilities included with the Reflection Suite for TCP, there are several sources of information available to help you diagnose and correct the problem:

- ▲ If you're having trouble with Reflection 2 for Windows, choose the Troubleshooting command from the terminal window's Help menu; this opens a Help window that recommends solutions to common problems you may encounter.
- ▲ If you're having trouble with the TCP Connection, use the online help for RNS; see page 38 for more information. Each of the network applications included with the Reflection Suite for TCP also contains a Help menu that contains information to help you correct the problem.

If you can't find a solution to the problem in one of the online information sources, try the "Troubleshooting" section of the appropriate *Technical Reference* manual, or consult your system manager.

If you cannot resolve your problems through one of the above methods, try one or more of the following technical support options:

- ▲ In the U.S.A., use your modem to dial into WRQ's bulletin board system (BBS): call 206.217.0145. There are five dial-in lines at up to 14,400 bps.
- ▲ In Europe, use your modem to dial into WRQ's satellite BBS: call +31.70.356.27.25. There is one dial-in line at up to 9,600 bps.
- ▲ Connect to the WRQ BBS over the Internet. Telnet to `bbs.wrq.com`.
- ▲ Request Reflection Technical Notes through a 24-hour automated fax request line: call 206.216.2680.
- ▲ Join the WRQ Reflection Forum on CompuServe: enter `GO REFLECTION` or `GO WRQFORUM`.

If you need further help, call the Reflection technical support team. To receive technical support, you must be a registered user of Reflection—just send in your completed registration card.

In the U.S.A., support hours are from 5 A.M. to 5 P.M. Pacific time, Monday through Friday. Call 206.217.7000. If you need to fax information, the number is 206.217.9492.

Outside the U.S.A., contact your WRQ authorized distributor. In Europe, call +31.70.375.11.00 for the name of the distributor nearest you. In other countries, call 206.217.7100 and ask the International Department for the name of the distributor nearest you.

When you call, it's best if you're seated at your PC and have a printed copy of the following files:

- ▲ AUTOEXEC.BAT from your root directory
- ▲ CONFIG.SYS from your root directory
- ▲ NET.CFG or PROTOCOL.INI from your TCP Connection directory (WRQNET is the default directory)

VT Connectivity With Reflection 2

To connect to a VMS or UNIX host as a VT-series terminal, you use Reflection 2 of the Reflection Suite for TCP.

This section introduces Reflection 2, explains how to establish host communications using the TCP Connection and a Telnet connection type, and describes many of the features available in Reflection 2. Examples are provided for both VMS and UNIX host environments.

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Introduction

With Reflection 2, your PC *emulates*, or operates like, a Digital VT terminal. This allows you to communicate with a host computer just as if you were using a terminal, and maintain a host connection while running other Windows applications.

This section describes Reflection 2 for Windows, which emulates the Digital Equipment Corporation VT320, VT220, VT102, VT101, VT100, and VT52 text terminals.

In addition to complete terminal emulation, Reflection 2 offers these features:

- ▲ The ability to print host and screen data to a PC printer or to a disk file on your PC, or to log output directly to the printer.

See “Printing in Reflection” on page 79.

- ▲ Control over the colors of your Reflection window. You can configure the color of the window background and all styles of text—plain, bold, inverse video, and so on.

See “Setting Up Colors” on page 85.

- ▲ A button palette that can hold up to 40 graphical buttons you define, and the ability to remap the keys on your keyboard.

See “Creating a Button Palette” on page 89 and “Customizing the Keyboard” on page 94.

- ▲ Most terminals let you run only one host session at a time. With Reflection and the TCP Connection, you can run multiple host sessions simultaneously, with each session displayed in its own window. Further, all sessions remain active when you have multiple sessions open.

See “Managing Connections” on page 103.

- ▲ Reflection command language, Reflection's built-in programming language, to automate tasks. See page 108.

To help you write command files, Reflection provides a script recorder that can record your actions to a file for playing back later. See page 116.

- ▲ File transfer to move files between the host and your PC. Using the WRQ protocol, you can “drag and drop” files in the WRQ File Transfer dialog box between your local PC and the host.

See “Transferring Files” on page 123.

The Reflection Suite for TCP Setup program installs Reflection 2 for you, and creates an icon for Reflection 2 in your Reflection program group. The next chapter, “Establishing Host Communications,” explains how to start Reflection 2 and use the TCP Connection to establish a host connection.

Establishing Host Communications

You can use Reflection 2 to communicate with a host computer over a direct serial connection, by modem, or via a network interface. Because you are using the Reflection Suite for TCP, which provides TCP/IP and Telnet network support, this chapter explains how to start and configure Reflection with the appropriate communications settings for a Telnet connection.

For information about direct serial and modem connections or other connection types, refer to the online help or the *Reflection Technical Reference*.

Starting Reflection and Connecting to the Host

To start Reflection and establish a connection to the host:

1. Start Windows.
2. Open the Reflection program group, then double-click the Reflection 2 icon to start the application.

Reflection's startup mountain appears. Then after a few moments, the Reflection terminal window appears; the terminal window acts like the screen of a VT terminal and is where you interact with the host computer.

3. The Reflection Suite for TCP Setup program installs a settings file—a file that stores your customized Reflection settings—called `SETTINGS.R2W` (if you don't already have a file with this name). This file automatically configures Reflection with a Telnet connection and settings appropriate for a UNIX host.

If you need a VMS instead of a UNIX configuration, exit from Reflection, use the File Manager to remove or rename the `SETTINGS.R2W` file that Setup installs, then restart Reflection.

When you start Reflection with a settings file, the Reflection title bar shows the name of the settings file in use; if no settings file is used, the title bar shows (*Untitled*).

If this is the first time you're using Reflection and you're starting with the supplied `SETTINGS.R2W` file, you only need to specify the name or address of your host when prompted by the following dialog box:



Specifying the Host Name or Address

If you already had a settings file called `SETTINGS.R2W` from a previous version of Reflection, Reflection uses the values in that file when it starts, and you should receive your host prompt. (When you already have a `SETTINGS.R2W` file, Setup installs a file called `WRQUNIX.R2W` that contains the Telnet and UNIX settings. You can use this file if you need to load these settings at a later time for a UNIX configuration.)

4. If you're starting without a settings file (for instance, because you removed the supplied SETTINGS.R2W file to work in a VMS environment), the Basic Connection dialog box appears when you first start Reflection:



Basic Connection Dialog Box

Select *TELNET* from the Connection Type list box.

5. Select the host you want to connect to. You can select a host in three ways (depending on which dialog box you're using, not all methods may be available):
 - ▲ If you're using the Basic Connection dialog box, and the name of the host you want appears in the drop down list, click the host name to select it. Host names appear in the list when a Hosts file is present on your PC (you can use the Browse button to locate the Hosts file if you have one on your PC but its name doesn't appear in the TCP/IP Host File Name field; see page 164 for more information about the Hosts file).
 - ▲ If you know the Internet Protocol (IP) address of the host you want, enter its address in the Host Name text box, using dotted decimal notation. For example, 192.82.17.1.
 - ▲ If a domain name server can be queried for the host name and address, type the name of the host in the Host Name text box. For Reflection to obtain the IP address of the host, domain name server information must be entered in the TCP/IP Configuration category of the Reflection Network Series Settings. You can run the Network Configuration utility to change these settings.

6. Choose OK (or Connect in the Basic Connection dialog box) to open the connection.

After you close the dialog box, the TCP Connection networking software starts, the Telnet connection opens, and after a few moments, you should see your host prompt. The prompt indicates you're connected. At the host prompt, log in as you normally would.

Once the connection is established, you'll also see the RNS icon on your desktop. This icon appears when Reflection automatically launches the TCP Connection to open your Telnet connection to the host.

If you can log in successfully, the next thing you should do is save your settings; this is explained on the next page. If you do not see a host prompt, the information on page 57 can help you determine the problem.

Disabled Menu Commands

System administrators are given the ability to control access to specific menu commands; these commands still appear on Reflection's menus, but they are dimmed. When you highlight a command that is dimmed, the status line text at the bottom of the terminal window reads:

Disabled by your system administrator

If you need access to a command that has been disabled, contact your system administrator. Do not contact WRQ's technical support; there is nothing they can do to allow access to a disabled feature.

Saving Your Settings

When you make changes in Reflection, the new values are used only until you change them again or exit Reflection. If you have established a host connection, you should save your settings to a Reflection settings file. By default, Reflection settings files have the extension R2W.

If you are using the SETTINGS.R2W file supplied with the Reflection Suite for TCP, you can save your settings by choosing the Save command on the File menu. When you use an existing settings file, the Save command on the File menu reads "Save (<filename>)," where <filename> is the name of the active settings file. For example, the command may read "Save (SETTINGS.R2W)." You can choose this command at any time to save your Reflection settings without being prompted. Settings files are discussed further on page 67.

Note: If you are using the supplied SETTINGS.R2W file and are running Reflection from a network server, use the Save As command instead of Save the first time you save your settings, and save your settings to your local PC. If you use the Save command, you will save the SETTINGS.R2W file on the network server, which all users will then share. This is probably not what you intend to do. ▲

If you are not using an existing settings file and the Reflection title bar shows (*Untitled*), use these steps to create a new settings file:

- ▲ Choose Save from the File menu.

Since the terminal window is (*Untitled*), the Save command opens the Save File As dialog box with a suggested name of *settings.r2w*. Choose Save to accept the default settings file name; the title bar will then read *Reflection 2-SETTINGS.R2W*.

You can also create a icon associated with this settings file; this is explained on page 70.

Exiting Reflection

You can exit from Reflection in a number of ways:

- ▲ Choose Exit from the File menu
- ▲ Choose Close from the Control menu (or press **Alt-F4**)
- ▲ Double-click the Control menu box

You can make choices about what happens when you exit Reflection (for example, if you should be prompted to exit or if your host connection should automatically be closed) in the Save/Exit Options and Connection Preferences dialog boxes. See the online help or the *Reflection Technical Reference* for more information on configuring these items.

After you exit Reflection, the RNS icon is also removed from your desktop. The TCP Connection is no longer needed once you exit Reflection and close the Telnet connection to the host, so it is removed from memory to save space and system resources.

Are You Connected?

If you have a host connection, continue with the next chapter, "Taking a Guided Tour." You'll be shown how to use many of Reflection's features. If you are having trouble establishing a connection, the next section can help you determine the problem.

If You Can't Connect

If you were not able to establish a host connection by following the steps on page 51, you may have received either the error message "Required communication software not installed" or "Cannot find WINSOCK.DLL—Cannot load connection-specific library." These messages mean that Reflection cannot locate some of the files described in the following steps.

When *TELNET* is selected as the Connection Type, Reflection goes through the following steps to try to establish a connection:

1. Reflection first checks to see if a file called TELMGR.EXE (the Telnet file that ships with the Reflection Network Series for DOS) has been loaded in DOS.

If this file has been loaded, you should be able to establish a connection, but the connection will not be via the TCP Connection included with the Reflection Suite for TCP, and the RNS icon will not appear on your desktop.

2. If TELMGR.EXE is not found, Reflection loads RNTelNET.DLL, the Telnet protocol file included with the Reflection Suite for TCP.

3. As RNTLNET.DLL loads, it, in turn, tries to load WINSOCK.DLL, the Windows Sockets file included with the Reflection Suite for TCP. RNTLNET.DLL looks for WINSOCK.DLL in the following order in the following directories:

- ▲ The current working directory
- ▲ The Windows directory
- ▲ The Windows \SYSTEM subdirectory
- ▲ The Reflection 2 directory (by default, \RWIN)
- ▲ Directories listed in the PATH statement of the AUTOEXEC.BAT file

To make sure Reflection can locate these files:

- ▲ Check your Reflection 2 directory (by default, \RWIN) for the RNTLNET.DLL file.
- ▲ Check your TCP Connection directory (by default, \WRQNET) for the WINSOCK.DLL file.
- ▲ Check your directory path (type `PATH` at the DOS prompt) to make sure that the correct TCP Connection directory is listed.

If you're running Reflection from a network server, the section below provides some additional troubleshooting help if you encounter one of the error messages described above. Otherwise, you may need to re-run the Reflection Suite for TCP Setup program to correct for any missing files or directory information.

If You're Running Reflection from a Network Server

If you're running Reflection from a server installation of the Reflection Suite for TCP, it's possible to receive the error "Required communications software not installed" even when all of the communications software is installed in the correct locations and the directory path in your AUTOEXEC.BAT file contains the correct TCP Connection path information.

In this case, your local area network software (such as Novell NetWare) may be changing your directory path when you log in or out of the network, thus preventing Reflection from finding the required software.

For example, the Reflection Suite for TCP Setup program updates your AUTOEXEC.BAT file to include the network path where the TCP Connection software is installed. But suppose that when you log out of the network, your network software removes network drive letters from the path; this would remove the TCP Connection network directory from your search path. Unless you reboot your PC (or re-run your AUTOEXEC.BAT file), the network path for the TCP Connection software will *not* be included the next time you log in to the network.

The easiest way to avoid this problem is to change the working directory for Reflection 2 in the Program Manager. To do this:

1. Select the Reflection 2 icon in your Reflection group in Program Manager.
2. Choose the Properties command from the Program Manager File menu.
3. In the Working Directory text box, change the working directory to the directory where your TCP Connection software is installed.
4. Choose OK to close the dialog box.

The next time you start Reflection and it tries to load the communications software, the communications software will be found regardless of the path statement.

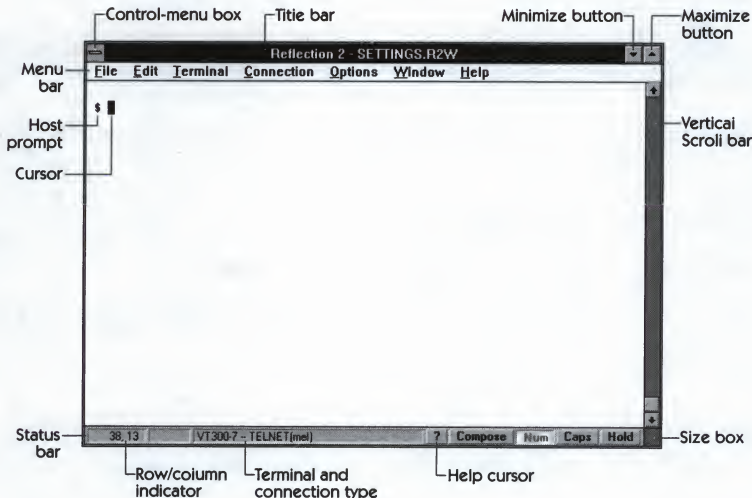
Taking a Guided Tour

This chapter introduces you to some of the most commonly used features in Reflection 2:

- ▲ Working in the terminal window
- ▲ Working with Reflection settings files
- ▲ Getting help in Reflection
- ▲ The display and display memory
- ▲ Printing in Reflection

Working in the Terminal Window

The terminal window is where you interact with the host computer; it acts like the screen of a VT terminal. While it looks to the host like a standard terminal, Reflection takes full advantage of the Windows interface (as described in this section) and can be customized (as explained on page 83):



Host Prompt and Cursor

After you connect to the host computer, the host prompt and cursor appear in the terminal window.

Menus

The name of each Reflection *menu* is listed across the top of the terminal window in the menu bar. A *command* is something that tells Reflection to carry out an action: Reflection groups commands that perform similar actions into menus.

Title Bar

By default, the title bar shows the name of the current settings file, a file that stores your customized Reflection settings. You can change the text that appears in the title bar; this is explained on page 84.

Scroll Bars

Use the scroll bars to move the viewing area of the terminal window. The horizontal scroll bar appears only when the terminal window is reduced in size, or when Reflection is in 132-column mode but not all 132 columns are visible at once.

Status Bar

Reflection's terminal window has a status bar (separate from the VT status line, described next). Click an indicator in the status bar to:

- ▲ Toggle the state of the **NumLock** and **CapsLock** keys, by clicking the Num and Caps indicators.
- ▲ Toggle the hold screen state, by clicking the Hold indicator (this simulates pressing **ScrollLock**).
- ▲ Close the printer or an open disk file.
- ▲ Turn the mouse pointer into a help pointer, explained on page 73.
- ▲ Start a compose key sequence, explained in the online help and the Reflection *Technical Reference*.

The status bar also shows the type of terminal Reflection is emulating, along with the Connection Type.

The left half of the status bar is normally empty, but different indicators can occasionally appear in it. For example, the area in the middle shows Reflection command language instructions as they execute. The area to the right of the row/column indicator shows various status icons:

	Reflection is waiting for a command to complete
	The Script Recorder is active
	Event tracing is active
	Server mode for file transfers is active (via the SERVER command)
	A Reflection command language command is executing
	The keyboard is locked
	Connection DSR indicator
	Connection CTS indicator
	Connection DCD indicator

VT Status Line

The bottom line of the terminal window, immediately above the status bar, is reserved for the *VT status line*, an optional one-line display that provides information about the current session. In the Terminal Display Setup dialog box, you can select an *Indicator* status line, which shows the position of the cursor and the print mode, a *Host Writable* status line, which can display messages from the host, or no status line (the default).

Minimize/Maximize Buttons

The minimize and maximize buttons let you change the size of the terminal window. Sizing the window is explained next.

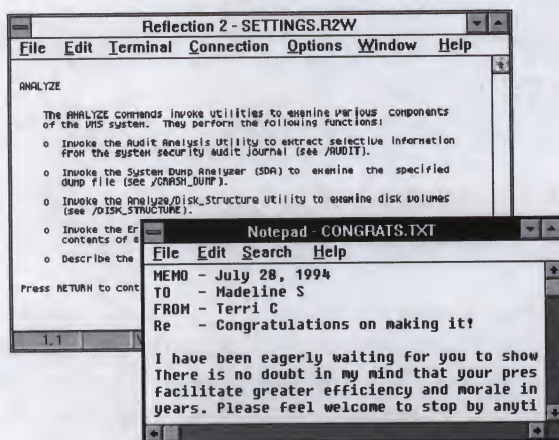
Resizing the Terminal Window

You can resize the Reflection terminal window, making it convenient to use Reflection and other Windows applications simultaneously.

To resize the terminal window:

1. Point to a corner or border of the terminal window. The mouse pointer changes to a two-headed arrow.
2. Drag the corner or border until the window is the size you want.

Reflection automatically scales characters, so you can resize the terminal window and still display the entire contents of the host screen in the window. The following figure illustrates how Reflection resizes the terminal window, while Notepad simply obscures a portion of the window contents when its window is resized:



The size and position of the terminal window are saved when you save a Reflection settings file, so the next time you start Reflection, your window appears exactly as you left it.

Double-clicking with the right mouse button on the title bar resets the default terminal window size (only if the window is not maximized).

Proportionately Resizing the Terminal Window

You can easily increase or decrease the size of the terminal window in proportional increments by clicking on the minimize and maximize icons using the right mouse button; this works only when the current state of the window is *not* maximized. The standard window size increments assume an 80 column $\times$ 24 row display, and fonts with a 2:1 aspect ratio. Resizing works best when Reflection is left set at the default number of rows (24).

Selecting Text in the Terminal Window

The following procedures show some different ways to select text using the mouse in the terminal window. After releasing the mouse button, use the **(Shift)** key to extend the selection with subsequent clicks or drags. To select everything you see on the screen and the information that has scrolled off the top, choose the Select All command from the Edit menu.

To select any portion of a line:

- ▲ Hold down the left mouse button and drag across the text you want to select.

To select a complete word:

- ▲ Point at the word and double-click the left mouse button.

To select a complete line:

- ▲ Move the mouse pointer to the left margin of the terminal window; the pointer changes into an arrow that points up and to the right. This allows you to select a line by clicking the left mouse button, or to select multiple lines by dragging the pointer down in the left margin. Clicking and dragging extends the selection a whole line at a time.

To select a rectangular portion of text:

- ▲ Hold down the **[Ctrl]** key and drag the mouse pointer across the text you want to select.

Once text is selected, you can:

- ▲ Choose Copy from the Edit menu to place your selection on the Clipboard. You can then paste the selection into a word processor or any other application that lets you paste text.
- ▲ Save the selection to a disk file (see page 78).
- ▲ Choose Print from the File menu to print the selection (see page 79).

Using the Right Mouse Button in the Terminal Window

The right mouse button performs special functions in Reflection's terminal window:

- ▲ Clicking the right mouse button on a word transmits the word to the host, followed by a carriage return (**C**R). When you click the right mouse button on a blank space, just a **C**R is sent to the host. If you do not want a **C**R automatically appended to the word, hold down **[Shift]** while you click with the right mouse button.
- ▲ Clicking the right mouse button while holding down the **[Ctrl]** key sends a sequence of arrow keys to the host program, to move the host cursor to the place where you clicked. For example, if you are working in a host editor and want to move the editor's cursor using the mouse, hold down **[Ctrl]** and click the right mouse button where you want the cursor positioned.

Note: You can move the cursor only to another position on the display; you cannot move it into display memory. (The display and display memory are explained on page 74.) ▲

- ▲ Clicking the right mouse button on the minimize and maximize icons in the terminal window decreases and increases the size of the window in proportional increments. Double-clicking with the right mouse button on the terminal window's title bar restores the default window size. See page 65 for more information.

Working with Reflection Settings Files

Any changes you make in Reflection—for example, setting up your host connection, changing from 80 to 132 columns, or remapping a keystroke—are temporary; Reflection uses them only until you change them again or exit Reflection. To record changes permanently, you can save them to a settings file. A settings file stores your customized terminal settings, making it easy to connect and configure your session the next time you start Reflection.

If you established a host connection in the previous chapter, you probably saved a settings file. Each time Reflection starts, it looks for the settings file specified in the Program Item Properties dialog box in the Program Manager. If no settings file is specified, Reflection looks for one called `SETTINGS.R2W`. If `SETTINGS.R2W` is not found, the Basic Connection dialog box opens (as described on page 51) and Reflection starts with its factory default settings and an untitled terminal window.

If you connect to different host computers or use different settings for different connections, you can save a separate settings file for each situation. For example, if you usually connect to a UNIX host, but occasionally need access to a VMS host, you may want to save some settings specifically for a VMS host. This way, you won't have to change all the related parameters to accommodate a VMS session before you connect.

Review the examples on the next few pages to learn how to create, save, and load different settings files, and how to save your Reflection settings to an icon in the Program Manager.

Creating a New Settings File

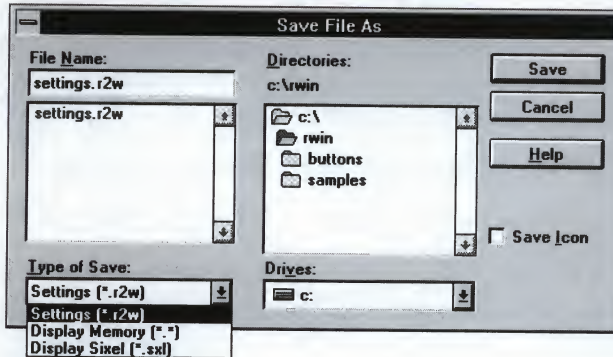
When creating a new settings file, you may want to start with an existing setup and change only the settings you need to. That way, you can keep many of your customized options intact, and change only those necessary to establish communications.

The following example shows how to create a settings file for a Telnet connection to a different host; in this case, the WRQ bulletin board system. To actually connect to the WRQ bulletin board using Telnet, your computer must have a connection to the global Internet.

1. Choose New from the Connection menu.
2. In the New Connection dialog box, select *TELNET* from the Connection Type list box.
3. In the Host Name text box, enter the name of the host you want to connect to: *bbs.wrq.com*. If you don't have a domain name server that can resolve the IP address from this name, enter the IP address of the host instead:
150.215.17.124.
4. Choose Connect.

After a few moments, you should see the opening screen for the WRQ bulletin board and receive the "First Name?" prompt.

- Choose Save As from the File menu to open the following dialog box:



Save File As Dialog Box

This dialog box allows you to save either a Reflection settings file or an ASCII file containing the selected text on the display (if no text is selected, then all of display memory is saved).

In this example, you're saving a settings file, so make sure the Type of Save list box is set to *Settings (*.r2w)*.

- If necessary, change to the Reflection directory on your hard drive. If you're running a server version of the Reflection Suite for TCP software, change to a directory on your local hard drive where you want to store the settings file.
- Type `WRQBBS` in the File Name text box.
- Choose Save.

The title bar now reads *Reflection 2 – WRQBBS.R2W*. The *.R2W* extension is added to the name automatically.

Saving a Settings File to a Reflection Icon

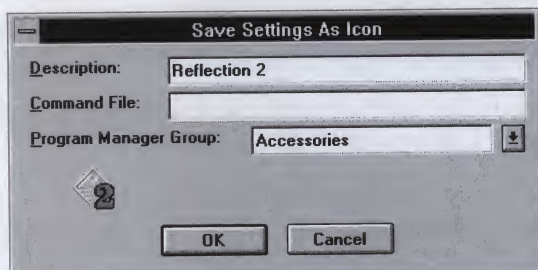
The Save File As dialog box includes a check box called Save Icon. If you select this check box, you can save a settings file to a Reflection icon in the Program Manager. By saving the settings file to an icon, you can double-click the icon to start Reflection using the settings stored in the selected file.

To do this for the WRQ bulletin board settings file you just created:

1. Choose Save As from the File menu to open the Save File As dialog box.

The name *WRQBBS.R2W* appears in the File Name text box, since this is the name of the currently active settings file.

2. Select the Save Icon check box.
3. Choose Save to open the following dialog box:



Save Settings As Icon Dialog Box

4. In the Description text box, type WRQ BBS Connection.

The Save Settings As Icon dialog box also lets you append a command file to a settings icon. This lets you execute a Reflection command language file to automate tasks each time you open the icon. For now, leave the Command File text box blank.

5. From the Program Manager Group list box, select the group where you want the icon saved (the Reflection group, for instance). You can also type in a new group name to create a new group for this icon.

6. Choose OK.

If the settings file already exists (as it does in this case), you are prompted before overwriting it. To continue with this example, choose Overwrite.

Note: Even if you cancel the save process (to avoid overwriting an existing settings file, for example), the icon is still created in the selected group in the Program Manager. ▲

Now, to start Reflection from the Program Manager with the values saved in the WRQ bulletin board settings file, simply double-click the icon you created.

Opening Different Settings Files

As explained on page 67, each time you start Reflection, it looks for a settings file called `SETTINGS.R2W`, unless a different settings file is specified in Reflection's Program Item Properties dialog box in the Program Manager (for instance, by creating an icon for a settings file, as explained above).

If `SETTINGS.R2W` cannot be found, the Basic Connection dialog box opens, Reflection starts with its built-in default settings, and the terminal window's title bar reads (*Untitled*).

There are three ways to load a new settings file: from the Program Manager, from within Reflection, and by using Reflection command language.

Opening a Settings File from the Program Manager

When you select the Save Icon check box in the Save File As dialog box, you can save a settings file to a Reflection icon in a new or existing Program Manager group (as explained on the previous page).

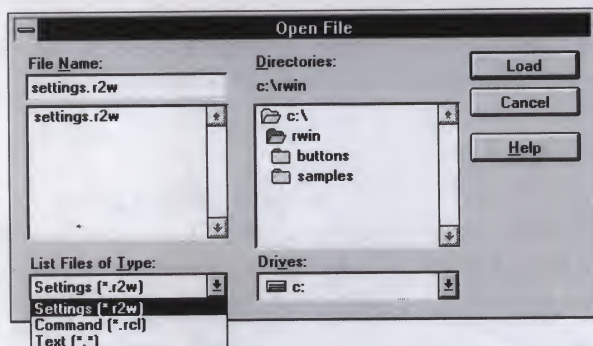
If you've done this, you can start Reflection and open the settings file by double-clicking the icon.

If a copy of Reflection is already running, double-clicking a Reflection icon to open a settings file starts a new instance of Reflection; this way, you can open multiple terminal windows, with each window configured for a different host connection. Managing multiple connections is explained in more detail on page 106.

Opening a Settings File from Within Reflection

If you are already in Reflection, you can open a different settings file using the Open command from the File menu. In the following example, assume WRQBBS.R2W (the file you just created) is your current settings file, and you want to load the default settings file SETTINGS.R2W:

1. Choose Open from the File menu to open the following dialog box:



Open File Dialog Box

You can open three types of files in Reflection:

- ▲ Settings files: to configure Reflection with the parameters and terminal preferences saved in that file.
- ▲ Command files: to be executed after you open them.
- ▲ Text files: to display the contents of a text file in the terminal window.

In this example, you are opening a settings file, so make sure the List Files of Type list box is set to *Settings (*.r2w)*.

2. Click once on the file called *settings.r2w* in the File Name area.
3. Choose Load, or press **Enter**.

Reflection loads the values saved in the default settings file, and the title bar now reads *Reflection 2 – SETTINGS.R2W*.

Your previous host connection, if any, is closed when you open a new settings file this way, and the configuration from the new settings file replaces the previous settings for the terminal window. This method does not start a new instance of Reflection with a new terminal window, as the method in the previous section does.

Opening a Settings File Using Command Language

The third method for loading a settings file is to use Reflection command language. You can also save settings files using command language. **LOAD** and **SAVE** are the keywords that let you control settings files. See the online help for more information about these commands.

Loading and saving settings files using command language can come in handy, for example, if you write a command file that requires specific settings; you can ensure that Reflection is configured correctly by loading a specific settings file from within your command file. You will learn more about command language later.

Getting Help in Reflection

Reflection's online help provides quick access to information about menu commands, dialog box options, Reflection procedures, and command language. You can view the contents of the Help window while working in Reflection, or minimize the window to an icon without losing your place.

There are four ways to open Reflection's Help window:

- ▲ Choose a help category from Reflection's Help menu (in either the terminal or command window) to get quick access to different help topics. Some categories take you directly to the information; others give you a list of topics from which to select.
- ▲ Press **(Shift)-(F1)** or click the question mark in Reflection's status bar at the bottom of the terminal window: the arrow pointer changes to a question mark pointer. Use the question mark pointer to pull down a menu and choose a command, click on a window area, or click on the button palette to get help.

- ▲ Press **[F1]**, or click on the **[Help]** button when one is available, in an open dialog box. The Help window opens with a description of each item in the dialog box.
- ▲ In the command window, highlight a keyword and choose the Help Selected Word command from the Help menu. Or, type `HELP` followed by the command's name (such as `HELP SAVE`). This opens the Help window for the command.

Note: If you want to get help for the TCP Connection and the network applications and utilities included with the Reflection Suite for TCP, use the RNS or RNS Help icons, as explained on page 38. ▲

The Display and Display Memory

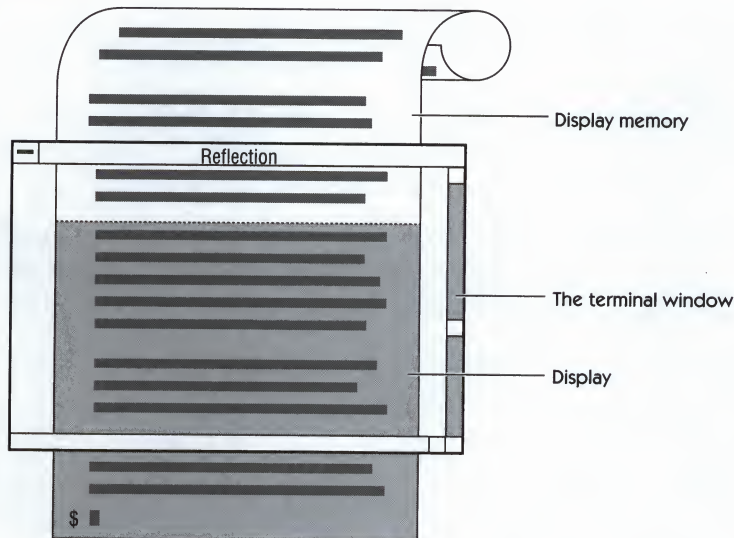
Two terms used frequently while working in Reflection are *the display* and *display memory*. These terms have special meaning to Reflection:

- ▲ *The display:* In Reflection, the display is like the screen of a VT terminal. The host can position the cursor anywhere on the display, and can write, erase, and alter characters at the cursor position. Typically, the display is 24 lines long, and either 80 or 132 columns wide.
- ▲ *Display memory:* Display memory contains both the information visible on the display and information that has scrolled off the top of the display. Display memory is a log of what has recently been sent from the host to the PC.

The VT terminals that Reflection emulates have no display memory. Because display memory is unique to Reflection, the host does not have access to it; the host cannot position the cursor, write to, or otherwise change the contents of display memory.

When you first start Reflection, both the display and display memory are empty. Once you start working, data starts accumulating on the display. When the display is full and lines begin to scroll off the top, display memory starts to fill up.

The terminal window provides a view into the display and display memory. The following figure shows how the display, display memory, and the terminal window interact:



Pausing Data that Scrolls onto the Display

As text scrolls onto the display, either from the host or from a Reflection command, it often scrolls faster than you can read it. If you want to pause the data that scrolls onto the display, there are four ways to do so:

- ▲ Click the Hold indicator in Reflection's status bar.
- ▲ Press the `ScrollLock` key on your PC keyboard.
- ▲ Choose Show Terminal Keyboard from the Window menu, and click the HOLD key (VtF1 on the terminal keyboard).
- ▲ Use the keystroke `Ctrl-S` to pause scrolling, and the keystroke `Ctrl-Q` to resume scrolling.

Reviewing Data in Display Memory

When you first start Reflection, there is nothing on the display or in display memory. When the display fills and new lines are added, the text at the top of the display scrolls into display memory. To see how the display and display memory work, fill the display with a few directory listings until text scrolls off the top. On a VMS host, type `DIR` and press **(Enter ↵)**; on a UNIX host, type `ls -l` and press **(Enter ↵)**.

To review the data in display memory:

- ▲ Click in the vertical scroll bar.

When you use the scroll bar, the Hold indicator in Reflection's status bar is enabled (an indicator turns blue when it is enabled). This temporarily freezes text sent by the host so you can view text in the display and display memory.

If the terminal window is sized so that a portion of the display is obscured (for example, you are working in 132-column mode and not all 132 columns are visible), you can scroll the display horizontally by clicking in the horizontal scroll bar.

If you are accustomed to using the keyboard instead of the scroll bars:

To scroll in this direction...

Up and down, line by line

Up and down, page by page
(known as Next/Previous Page)

Left and right
(relevant only if your right
margin is greater than 80)

To the top and bottom of
display memory

Use these keys...

(Ctrl)-↑ and **(Ctrl)-↓**

(Ctrl)-PgUp and **(Ctrl)-PgDn**

(Ctrl)-← and **(Ctrl)-→**

(Ctrl)-Home and **(Ctrl)-End**

Options for the Display and Display Memory

Besides viewing it, there are many other things you can do with the display and display memory. Some of the options described next work on selected text; others work with the entire contents of the display and display memory. The procedures on page 65 explain how to make different kinds of text selections.

You can copy it to the Clipboard...

Choose Copy from the Edit menu to place selected text on the Clipboard without removing the selection from its original location. Once a selection is on the Clipboard, use the Paste command on the Edit menu to paste the text at the cursor position or into another application.

You cannot cut (delete) text from the display or display memory.

You can clear it...

To remove everything from the display, choose Clear Display from the Edit menu. By default, Reflection saves text to display memory before clearing it—if you want Reflection to discard the contents of the display instead of saving it to display memory, clear the Save Display Before Clearing check box in the Terminal Display Setup dialog box.

To discard everything on the display and in display memory, choose Clear All from the Edit menu.

You can print it...

Choose Print from the File menu, then select either *Display Memory*, *Screen*, or *Selection* as the Print Item.

By default, output is sent to the printer. If you want to send the printed output to a disk file instead, select the Print to File check box in the Terminal Printer Setup dialog box before printing (see page 80).

You can save text to a disk file...

The text on the display and in display memory is discarded when you exit Reflection. To save all of the text to a disk file:

1. Make sure nothing is selected on the display—if text is selected, the selection will be saved.
2. Choose Save As from the File menu.
3. In the Save File As dialog box, select *Display Memory (*.*)* from the Type of Save list box.

The command button label changes from Save to Msave—MSAVE is a Reflection command that lets you save the contents of display memory.

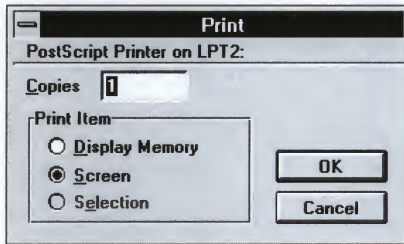
4. Type `TESTFILE.TXT` in the File Name text box.
5. Choose Msave.

After you have saved the text to a disk file, you can work with the file just as you would work with any other text file.

Printing in Reflection

To print display memory, the screen, or a text selection:

1. Choose Print from the File menu to open the following dialog box:



Print Dialog Box

2. Enter the number of copies you want to print.
3. Select an option from the Print Item group box:
 - ▲ Choose *Display Memory* to print all text in display memory; this includes anything currently displayed on your screen.
 - ▲ Choose *Screen* to print text currently displayed on your screen, excluding display memory.
 - ▲ Choose *Selection* to print the current selection.
4. Choose OK.

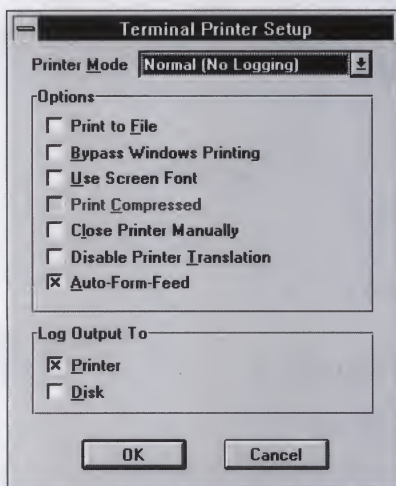
The output is sent to the Windows Print Manager in either of these cases:

- ▲ If Reflection finds a printer selected in the Print Setup dialog box (the “printer” can be a physical printer or a disk file, as specified from the Windows Control Panel).
- ▲ If a printer has been specified using the SET PRINTER-DEFAULT command (if this parameter is set to null, that is SET PRINTER-DEFAULT "", Reflection uses the default printer as specified under Windows).

The Windows Print Manager manages the printing of all files; it works in the background, sending print jobs to the printer while you continue working. You can look at the print queue for the status of any job; see your *Microsoft Windows User's Guide* for more information about the Print Manager.

Configuring Printing Options

Choose the Printer command from the Terminal menu to select a logging mode, capture printed output to a disk file, and configure printer options:



Terminal Printer Setup Dialog Box

Printing to a Disk File

Select the Print to File check box to capture printed output to a disk file; you are prompted for a file name each time you or the host prints. For example, when you choose Print from the File menu, a dialog box prompts you to name the disk file before printing starts. When the output has been printed, the file is closed.

This method differs from selecting *Disk* as the Log Output To option, where you are prompted for a file name just once when you close the Terminal Printer Setup dialog box, and only host-requested printing is written to the file. Information the host prints is added to this file until the host closes the file by turning off the logging method, or you click the Close Disk button in the status bar.

Printing Special Characters and Compressed Printing

Each time you print, Reflection uses your printer's default font. However, some characters, especially line drawing elements, may not print correctly; instead, they may appear as ASCII characters on the printout.

Reflection's on-screen font, on the other hand, is designed to accurately duplicate the host terminal screen, including any host line drawing elements. If you use a host application that contains line drawing characters, you may want to print and have the resulting output look just as it does on the screen—instead of having the line drawing characters converted to ASCII characters. To do this, select the Use Screen Font check box in the Terminal Printer Setup dialog box.

When you print using the Reflection font, you are also given the option to perform 132-column printing. To do this, select the Print Compressed check box.

Sample Printing Session

To print a selected portion of display memory to a disk file:

1. If you don't have anything in display memory, use the directory command on the host to add some text to it (use `DIR` on a VMS host; use `ls -l` on a UNIX host).
2. Choose Printer from the Terminal menu.
3. Select the Print to File check box.
4. Choose OK.
5. Hold down **Ctrl** and use the mouse to select a rectangular region of text on the screen.
6. Choose Print from the File menu. Reflection detects that you have text selected, and assigns *Selection* as the Print Item. Choose OK.
7. The Save File dialog box opens, prompting for a file name. Type `DMEMORY` and choose Save.

You can load this text file into any editor, including Reflection's command window. For example:

1. Press **Alt-Y** to open the command window.
2. Choose Open from the command window's File menu.
3. Type `DMEMORY` in the File Name text box, and press **Enter**.

The file opens in Reflection's command window.

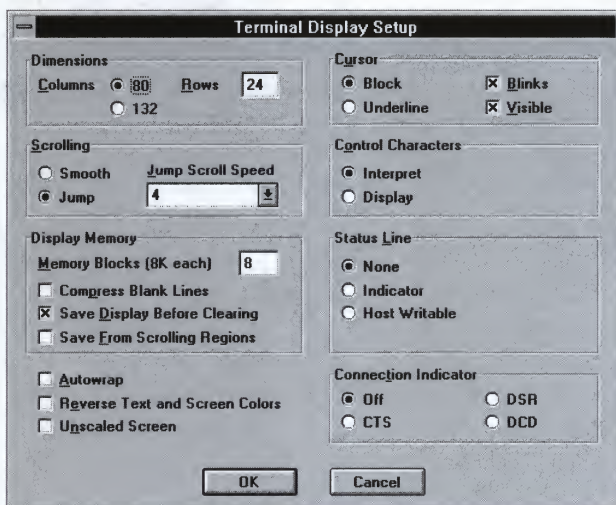
Customizing Reflection 2

You can customize many elements of Reflection to meet your specific needs and preferences. This chapter describes how you can:

- ▲ Change the appearance of Reflection's terminal window.
- ▲ Define the colors used for text and host attributes (including setting the background color of the terminal window).
- ▲ Create a button palette.
- ▲ Send host keystrokes by clicking on a graphical terminal keyboard, and map custom keystrokes to your keyboard.

Customizing the Terminal Window

Using options in the Terminal Display Setup dialog box, you can change a number of aspects of the terminal window. Choose Display from the Terminal menu to open the following dialog box:



Terminal Display Setup Dialog Box

Here you can set items such as:

- ▲ The number of columns—80 or 132.

If you switch to a 132-column display, a horizontal scroll bar appears to the right of Reflection's status bar; use the horizontal scroll bar to shift the screen to view columns that are out of view. Reflection adjusts the font size and attempts to show all 132 columns (depending on the current size of the terminal window).

- ▲ The number of rows—from 24 to 144. Simply overwrite the existing value with your new row number entry.
- ▲ Whether to autowrap; this automatically moves your cursor to the start of the next line when you move past the 80th or 132nd column (depending on the terminal window's column setting).
- ▲ The type of VT status line to display; see page 63.

You can also change window and attribute colors for the terminal window from the Terminal Color Setup dialog box—this is described on the next page.

Configuring the Title Bar

By default, the terminal window title bar shows the name of the current settings file. The name in the title bar is also the text you see when you minimize Reflection.

You can change the text that appears in the title bar, and consequently on the icon title, using Reflection command language (explained further on page 108). The Reflection SET parameter that controls this label has the following syntax:

```
SET WINDOW-TITLE "<maximum 64 characters>"
```

SET parameters are executed from the command window (press **Alt-Y** to open the command window). For example, to change the title bar text to read *Linda's Connection to the Internet*, open the command window, type the following line, then press **Enter**:

```
SET WINDOW-TITLE "Linda's Connection to the Internet"
```

To change the title bar back to showing the name of the current settings file, use a null string:

```
SET WINDOW-TITLE ""
```

To retain changes to the title bar text, choose **Save** from the **File** menu to save your settings file.

Setting Up Colors

In Reflection's Terminal Color Setup dialog box, you can customize the color of your screen and up to 16 host attributes. For each attribute, you can select a color for the text and a color for the background. For plain text, changing the background color changes the color of the terminal window. Once you've created a set of colors you like, you can save this color scheme in the REFLECT.INI file.

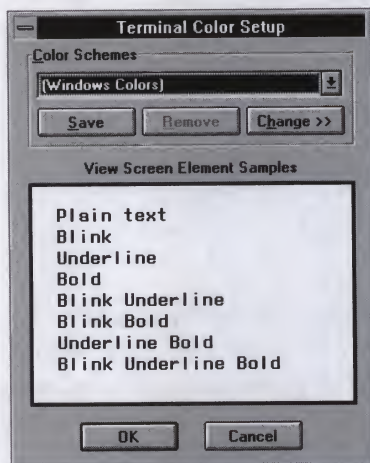
The text and background colors you set in Reflection's Terminal Color Setup dialog box are independent of colors you select in the Windows Color Control Panel. However, the Color Control Panel still manages the color of such items as active and inactive window title bars, dialog boxes, and the Reflection command window.

Working With Color Schemes

A color scheme is a saved set of color values. Reflection installs a number of predefined color schemes during Setup. To choose a color scheme in Reflection:

1. Choose Color from the Terminal menu.

The Terminal Color Setup dialog box opens:



Terminal Color Setup Dialog Box

2. To choose a scheme, select its name from the Color Schemes list box.

The color scheme called (*Windows Colors*) displays the colors you have configured in the Control Panel.

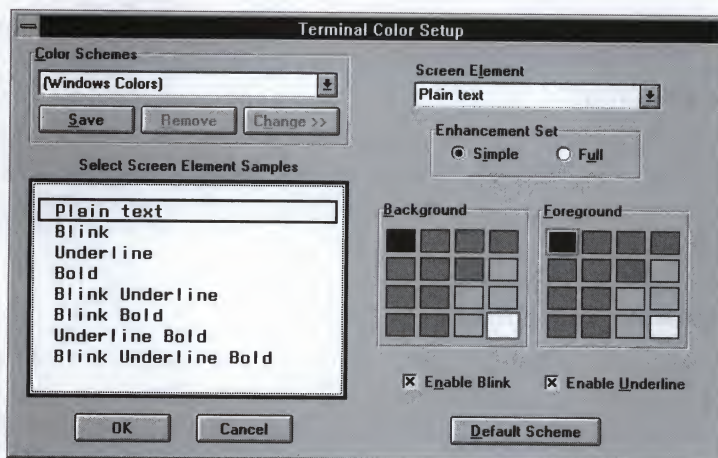
3. Choose OK to accept the new scheme and return to the terminal window.

If you want these colors to appear each time you start Reflection, choose Save from the terminal window's File menu.

Changing Colors

The predefined color schemes help you get started configuring colors. You can change a predefined scheme, or create and save a new scheme. The following procedure shows how to change the colors of an existing color scheme:

1. Choose Color from the Terminal menu, and select the name of a scheme from the Color Schemes list box.
2. Choose Change >> to expand the Terminal Color Setup dialog box:



Terminal Color Setup Dialog Box (Expanded)

3. In the sample Reflection window, click on the element you want to change (or choose the element name from the Screen Element list box).
4. In the Background and Foreground color palette squares, the current colors of the screen element are highlighted. To change the color of the element, click on a new color—the highlight moves to the new color square.

5. Change the color of other screen elements until you are satisfied with the colors.
6. To save your color selections as a new color scheme, choose the Save button. A dialog box asks you to name the scheme; this is the name that appears in the Color Schemes list box.
7. Enter a name for the color scheme, then choose OK to change the colors.
8. Choose OK to close the dialog box and return to the terminal window.

If you want these colors to appear each time you start Reflection, choose Save from the terminal window's File menu.

Color Defaults

When you choose the Default Scheme button in the expanded Terminal Color Setup dialog box, the colors identical to those found in the color scheme called *Variety* are loaded. This sets a white background, and assigns a different color to each text attribute.

Removing Color Schemes

To remove a color scheme, select the name of the scheme from the Color Schemes list box and choose Remove. A dialog box prompts you to confirm the deletion. The Remove button is dimmed when (*Windows Defaults*) is the active scheme.

Creating a Button Palette

Reflection has a button palette that can hold up to 40 graphical buttons. You can configure buttons to perform different actions, such as transmitting a string of text to the host or executing a single command or a command file.

To display the button palette:

- ▲ Choose Show Button Palette from the Window menu.

The first time you choose this command, Reflection displays its default button palette:



Default Button Palette

To activate a button, click on it using the left mouse button (you cannot use the keyboard to activate a button).

To move the button palette, drag its title bar. The size and position of the button palette are saved when you save your settings file.

The button palette “floats” on top of the active terminal window with which it is associated. When another application or instance of Reflection is made active, the inactive copy of Reflection hides its button palette.

Defining Buttons

To create your own button palette and define a new button:

1. Choose Button Palette from the Options menu to open the following dialog box:

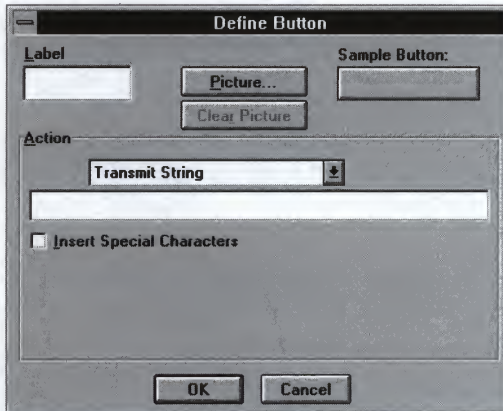


Button Palette Options Dialog Box

The buttons on the current button palette are displayed (you'll see the default buttons if you have not created others, as the above figure shows).

2. To start from scratch and create your own palette, choose New Palette. A dialog box prompts you for the number of buttons. In this exercise, choose OK to accept the default value of 8.

3. To set up the first button, choose Define (or double-click on the button label) to open the following dialog box:



Define Button Dialog Box

4. In this example, you'll set up a button to show a list of files in the current directory on your C drive. Type the following in the Label text box:

C Directory

By default, the Button Format in the Button Palette Options dialog box is set to *Picture and Text*. The left $\frac{1}{2}$ of the button is reserved for the picture, and the right $\frac{1}{2}$ is allocated for text. As you type the above text, the text automatically centers itself on the Sample Button in the area allocated for text (the right $\frac{1}{2}$ of the button).

5. The Action list box allows you to specify the action associated with the button. For details about each type of action, see the online help or the *Reflection Technical Reference*.

In this example, choose *RCL Command* from the Action list box.

6. Press **Tab** to move to the text box below the Action, and type:

DIR C:

7. Choose OK. The button you just defined appears in the Button Palette Options dialog box.
8. When you're through defining buttons, choose OK to return to the terminal window.
9. The button palette opens (if it was not open already), and the first button is the one you just created; the other seven buttons are blank. Click on the first button to send a file listing of the current directory on the C drive to the terminal window.

When the button palette is displayed, you can open the Define Button dialog box in one step by holding down the **(Ctrl)** key and clicking once with the left mouse button on a button label. You'll do this in the next procedure.

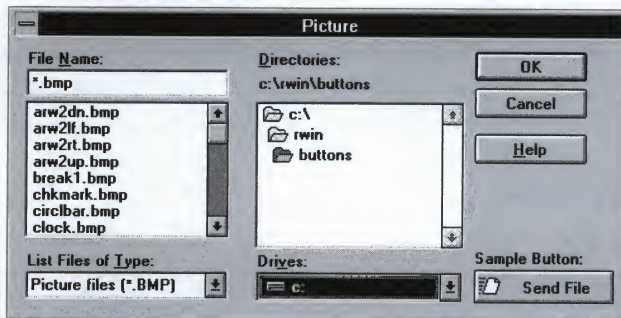
Including Pictures on a Button Label

In addition to the text on a label, you can also include a picture on the button label. In this example, you'll define the second button on the palette to show a list of files in your current host directory; the button will include a picture on its label:

1. To define the second button on the palette, hold down the **(Ctrl)** key and click on the button with the left mouse button to open the Define Button dialog box.
2. Type the following in the Label text box:

```
Host Dir
```
3. Select the Insert Special Characters check box.
4. With the Action list box set to *Transmit String* (the default), type `DIR` for a VMS host or `ls -l` for a UNIX host. After typing the command, press **(Enter ↵)**; you should see a ^CR symbol (this inserts a "special character"—a carriage return—at the end of the transmit string).

- To include a picture on this button's label, choose Picture to open the following dialog box:



Picture Dialog Box

The File Name area shows all bitmap (*.bmp) files in the current directory. If necessary, switch to the BUTTONS subdirectory as the above figure shows.

- The Reflection Suite for TCP Setup program installs a variety of bitmap files. To preview a picture, click on a bitmap file name once; the Sample Button in this dialog box updates to show a picture of the bitmap. For example, scroll down and click on the file name *dir.bmp*.

Choose OK to return to the Define Button dialog box.

- Choose OK to close the Define Button dialog box and return to the terminal window. The button palette now contains the new button you just created.
- Click on the new button (with the directory folders icon) to transmit the host directory command to the host and display a file listing in the terminal window.

To save these additions to the button palette with other values in your Reflection settings file, choose Save from the File menu.

Supplemental Bitmaps

A supplemental disk labeled “Button Pictures (Optional)” is included with the Reflection Suite for TCP. This disk contains over 100 files used for bitmap images on the button palette. To preview the images in the Picture dialog box, insert this disk into the floppy disk drive and change to that drive (A or B) using the Drives list box in the Picture dialog box. Then, to preview a file, select a bitmap as described above.

Saving the Button Palette

When you save your Reflection settings file using the Save command from the File menu, the current button palette is saved along with your other settings.

To save the button palette *separate* from your other Reflection settings, choose Save As in the Button Palette Options dialog box, then enter a name for the file.

The button palette file is a special type of settings file. When you want to load a specific button palette, choose the Open command from the terminal window’s File menu, then open the button palette file you want. This replaces the current button palette with the new button palette settings; it does not change any of your other Reflection settings.

Opening a button palette settings file is one of two situations in which the terminal window menu bar does *not* get updated with the name of the new settings file; this allows you to load different button palettes without affecting your communications settings. (The other situation is when loading a keymap settings file, which is described on page 102.)

Customizing the Keyboard

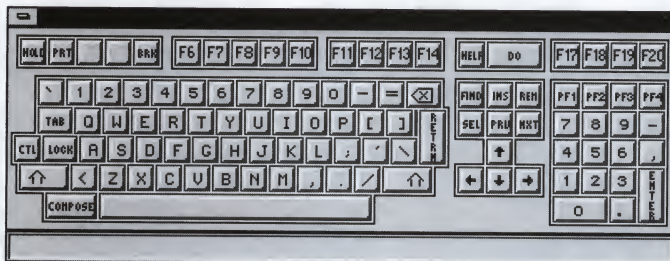
By default, Reflection maps your PC’s cursor pad and numeric keypad to behave like that of a Digital VT300-series terminal. To transmit terminal-specific keystrokes to the host, you have two options:

- ▲ Press the PC keystroke that performs the terminal keystroke. You can re-assign keys to host functions using the Keyboard Map Options dialog box; this is described below, in “Mapping the Keyboard.”
- ▲ Click a key on the graphical terminal keyboard; this is described next.

Displaying the Terminal Keyboard

The graphical terminal keyboard is a mini-keyboard that “floats” on top of your terminal window. It is a graphical representation of the Digital LK201 keyboard, the keyboard found on most VT200- and VT300-series terminals.

To display the graphical terminal keyboard, choose Show Terminal Keyboard from the Window menu:



Terminal Keyboard

You can position the graphical keyboard anywhere on your screen; its position is saved with your other settings when you choose Save from the File menu.

To transmit a keystroke to the host, click on the key shown on the graphical keyboard.

To see what PC keystroke, if any, is currently mapped to a terminal key, click and hold the mouse button on the key and read the status line text. For example, when you click and hold on **COMPOSE**, the text reads “VtCompose is mapped to: Alt+F8.” To transmit the function, just release the mouse button; otherwise, move the mouse off of the key before releasing the button. In this example, you can also press **Alt-F8** to transmit the Compose function.

Mapping the Keyboard

Some VT terminal functions and Reflection functions and commands—such as resetting the terminal or opening the command window—have preassigned keyboard shortcuts.

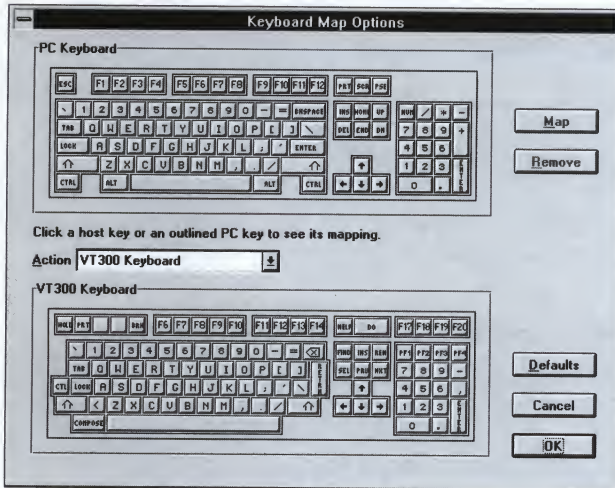
With keyboard mapping, you can assign, or *map*, keyboard shortcuts to functions that have no shortcuts, and you can change shortcuts already assigned to functions. You can also assign PC keyboard shortcuts that:

- ▲ Execute Reflection command language commands and command files.
- ▲ Transmit strings of text to the host.
- ▲ Emulate host keystrokes, such as the VT Help or Do keys.
- ▲ Perform *macro* functions, such as choosing Reflection menu commands, clicking buttons and check boxes in Reflection dialog boxes without opening the box, performing VT functions, and so on.

This table lists the default keystrokes for some common VT functions:

To simulate this VT function...	Use this keystroke...
VT Enter	Kp (Keypad) Enter ↵ or Alt-Enter
VT Return	Enter ↵
VT Next Screen	Cp (Cursor Pad) PgDn
VT Prev Screen	Cp PgUp
VT Remove	Cp Delete
VT Backarrow	Backspace
PF1 (the gold key)	NumLock
PF2	/
PF3	*
PF4	-

To map PC keys to host keystrokes and Reflection functions, use the Keyboard Map Options dialog box. Choose Keyboard Map from the Options menu to open this dialog box:



Keyboard Map Options Dialog Box

The top of the dialog box shows the layout of your PC keyboard: either a standard 101-key keyboard, an LK250 keyboard, or an LK450 keyboard (depending on which keyboard you selected when you installed the Reflection Suite for TCP; see page 12). PC keystrokes that are already mapped are outlined in the keyboard; more mapped keys appear when you select the Shift, Ctrl, and Alt keys in this dialog box.

The bottom half of the Keyboard Map Options dialog box changes depending on the type of mapping selected in the Action list box. When you first open the dialog box, the Action is set to *VT300 Keyboard*, and the terminal keyboard is shown.

To see what VT function a PC key is mapped to, click on the PC key. Likewise, to see what PC key to use to perform a VT function, click on the VT key. For example, click on the (NUM) key on the PC keyboard; the (PF1) key on the VT keyboard is selected to show that in Reflection this key is mapped to the (NumLock) key on your PC keyboard.

The following examples show how to:

- ▲ Map a PC keystroke to a host function.
- ▲ Map a PC keystroke to a command on a Reflection menu.
- ▲ Map a PC keystroke to a series of commands.
- ▲ Execute a Reflection command with a keystroke.
- ▲ Execute a host command with a keystroke.

As you work through the examples below, you can click anywhere in the dialog box with the right mouse button to deselect all keys.

Mapping a PC Keystroke to a Host Function

This example shows how to map the **Ctrl-H** keystroke to invoke the VT Help function:

1. In the Keyboard Map Options dialog box, click on the **HELP** key on the VT keyboard.

Since this VT function is already mapped to a keystroke, the Shift and **F5** keys on the PC keyboard are selected.
2. Click on the new PC keystroke you want to assign to this function. In this example, click on **CTRL** and **H** on the PC keyboard. Then, click on the Shift key to deselect it.

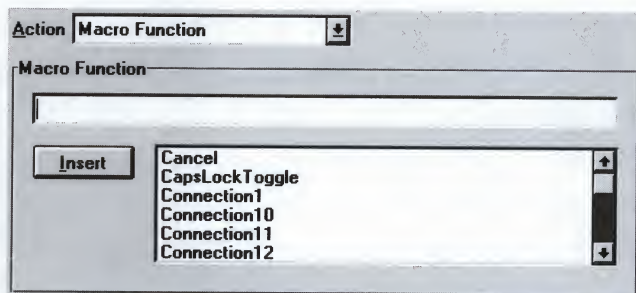
If you hear a beep when you try to select a PC key combination (such as **Alt-F**), this indicates that the keys are reserved as a Reflection, Windows, or host function and cannot be mapped. See the *Reflection Technical Reference* for a list of reserved functions.

3. Click on the Map button.
4. Choose OK to close the dialog box and activate the changes.
5. If you want to retain this mapping with other values in your settings file, choose Save from the File menu.

Mapping a Command from Reflection's Menu Bar

This example shows how to map the **Alt**-(cursor pad)← keystroke so it saves your settings file:

1. In the Keyboard Map Options dialog box, click on the **ALT** key and the ← key on the PC keyboard's cursor pad.
2. Choose *Macro Function* from the Action list box. The bottom half of the dialog box changes to look like this:



Macro functions are Reflection functions that pull down menus, open dialog boxes, or activate host keys with a single word rather than a series of keystrokes or mouse clicks.

3. Scroll through the list of names and highlight the macro called `FileSave`, then click the Insert button (or type `FileSave` in the text box).

Macro names typically consist of a menu name and menu command joined into a single word.

4. Click on the Map button.
5. Choose OK to close the dialog box and activate the changes.
6. Open the File menu: **Alt+CpLeft** now appears next to the Save command.
7. Click on the terminal window (or press **Esc** twice) to deactivate the menu bar.
8. If you want to retain this mapping with your other Reflection settings, you can press **Alt** and the ← key on the cursor pad to save your current settings file.

Mapping a Series of Commands

With keyboard mapping, you can use multiple macros to combine a series of functions into a single keystroke. This example shows how to map **(F7)** to select all of the display and display memory, then copy the selection to the Clipboard:

1. In the Keyboard Map Options dialog box, click on **(F7)** on the PC keyboard.
2. Since this keystroke is already mapped to a host keystroke, you must first choose the Remove button to remove this mapping before you can remap the key.
3. Select *Macro Function* from the Action list box.
4. Scroll through the list of names to highlight the following macros, clicking the Insert button after each one:

EditSelectAll EditCopy

5. Click on the Map button.
6. Choose OK to close the dialog box and activate the changes.
7. To copy the entire contents of the display and display memory to the Clipboard, press **(F7)**.
8. If you want to retain this mapping with other values in your settings file, choose Save from the File menu.

Mapping Command Language to a Keystroke

This example shows how to map **(Ctrl)-(keypad)7** to switch your display to 132 columns, and the keystroke **(Ctrl)-(keypad)8** to set it back to 80 columns:

1. In the Keyboard Map Options dialog box, choose *RCL Command* from the Action list box.
2. In the text box, type `SET DISPLAY-COLUMNS 132`.
3. Click on the **(Ctrl)** key and the **7** key on the PC keyboard's numeric keypad.
4. Click on the Map button.
5. Click on the **8** key on the PC keyboard's numeric keypad.

6. Move the cursor to the end of the string already displayed in the RCL Command text box, and overwrite 132 with 80. The command should now read:

```
SET DISPLAY-COLUMNS 80
```

7. Click on the Map button.
8. Choose OK to close the dialog box and activate the changes.
9. First, make sure **NumLock** is on (the default). **(Shift)-(NumLock)** is the keystroke that toggles the NumLock state, or you can click the Num indicator in Reflection's status bar.

To change your display width to 132 columns, press **(Ctrl)** and the **(7)** key on the numeric keypad. To toggle back to 80-column mode, press **(Ctrl)-(8)**.

10. If you want to retain this mapping with other values in your settings file, choose Save from the File menu.

Mapping a Host Command to a Keystroke

This example shows how to map **(Ctrl)-(Shift)-(5)** to show a directory listing on a VMS host of all the files you created since yesterday, or a directory listing in long format on a UNIX host (this example assumes you are connected to a VMS host and at the DCL prompt, or connected to a UNIX host and at the system prompt):

1. In the Keyboard Map Options dialog box, choose *Transmit String* from the Action list box.
2. In the text box, type `DIR/SINCE=YESTERDAY` for a VMS host, or type `ls -l` for a UNIX host. Then, select the Insert Special Characters check box, and press **(Enter ↵)**; this appends the ^CR (carriage return) character to the string, just as if the **(Enter ↵)** key were pressed after the text of the string is transmitted.
3. On the PC keyboard, click on the **(Ctrl)**, **(Shift)**, and **(5)** keys.
4. Click on the Map button.
5. Choose OK to close the dialog box and activate the changes.
6. Press **(Ctrl)-(Shift)-(5)**. You see a list of the files in the format specified.
7. If you want to retain this mapping with other values in your settings file, choose Save from the File menu.

Saving a Keymap Settings File

Saving your settings file (using the Save command on the File menu) saves all of your Reflection settings, including the current keyboard map.

With the SAVE KEYMAP command in Reflection command language, you can save a keyboard mapping settings file separate from your other settings files. You can later load the keymap settings file to have a specific set of key mappings take effect.

To save a keymap settings file separate from your other Reflection settings:

1. Map the keys you want in the Keyboard Map Options dialog box.
2. Press **[Alt]-[Y]** to open the Reflection command window.
3. Type the following command and press **[Enter ↵]**:

```
SAVE KEYMAP <filename>
```

If you do not specify a filename, Reflection saves the keymap file with the default name of KEYMAP.R2W. You can use an optional parameter called DELETE if a file with the same name already exists and you want to overwrite it. For example:

```
SAVE KEYMAP KEYMAP.R2W DELETE
```

Loading a Keymap Settings File

The keymap file is a special type of settings file, containing only key mapping information. When you load a keymap settings file, it does not replace your current settings file; instead, it just updates your current settings with the keymap definitions.

To load a saved keymap settings file:

1. Choose Open from the terminal window's File menu.
2. Select the name of the keymap settings file.
3. Choose Load to open the keymap settings file in Reflection.

Opening a file of this type is one of the two situations in which the terminal window menu bar does *not* get updated with the name of the new settings file (button palette settings files are the other exception, as explained on page 94). This allows you to load a keyboard map without affecting your communications settings.

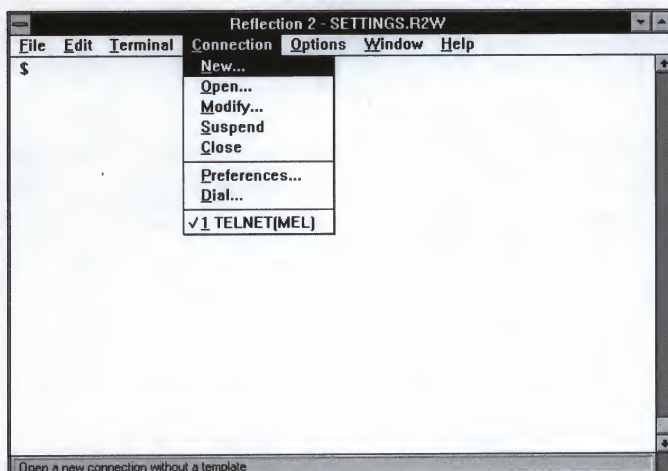
Exploring Reflection 2's Other Features

This chapter explores some features that expand the terminal emulation capabilities of Reflection 2. These include:

- ▲ Managing connections
- ▲ Using Reflection command language
- ▲ Using the Reflection Script Recorder
- ▲ Using Dynamic Data Exchange

Managing Connections

The commands on Reflection's Connection menu allow you to create new connections and open, modify, suspend, and close existing connections. All active, suspended, and busy connections are shown at the bottom of the Connection menu:



Connection Menu

The active connection has a check mark beside its name. To change the settings for an active connection, choose **Modify** from the **Connection** menu. You cannot change the **Connection Type** for an active connection; if you want to select a different **Connection Type**, use the **New** command on the **Connection** menu.

Busy connections—that is, those active in other copies of Reflection—are dimmed.

All other connections are considered suspended; to make one active, choose its name from this menu.

The next three sections explain how to create connection templates, initiate multiple network sessions, and re-establish communications if your host connection is dropped.

Connection Templates

After setting the options associated with a connection (which you did on page 51), you can save the settings to a *connection template*. Each time you want to connect, you can just open the appropriate template, instead of setting all of the individual connection options every time.

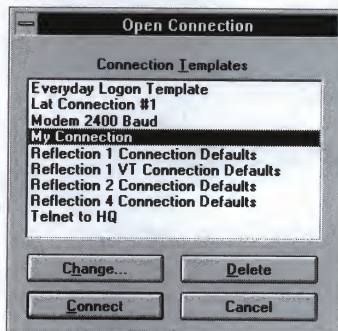
To create a template for your current connection:

1. Choose **Modify** from the **Connection** menu to open the **Modify Connection** dialog box.
2. Choose the **Save Template** button, and enter a name for the template. In this example, type *My Connection*.

Template information is written to the file called **REFLECT.INI** (located in the **Windows** directory), which specifies the parameters assigned to all templates. See the *Reflection Technical Reference* for details on this initialization file.

Once you save a template, use the Open command from the Connection menu to select it and connect to the host:

1. If you have an active connection, first log out of the host.
2. Choose Close from the Connection menu.
3. Now, to reactivate that connection, choose Open from the Connection menu to display the following dialog box:



Open Connection Dialog Box

4. In the Open Connection dialog box, choose the template for the connection you want. In this example, choose *My Connection*.
5. There are three things you can do after selecting a connection template:
 - ▲ Choose Connect to establish a host connection using the settings in the template.
 - ▲ Choose Change; this opens the Change Template dialog box, where you can modify the template's settings.
 - ▲ Choose Delete to remove a template from this list box.

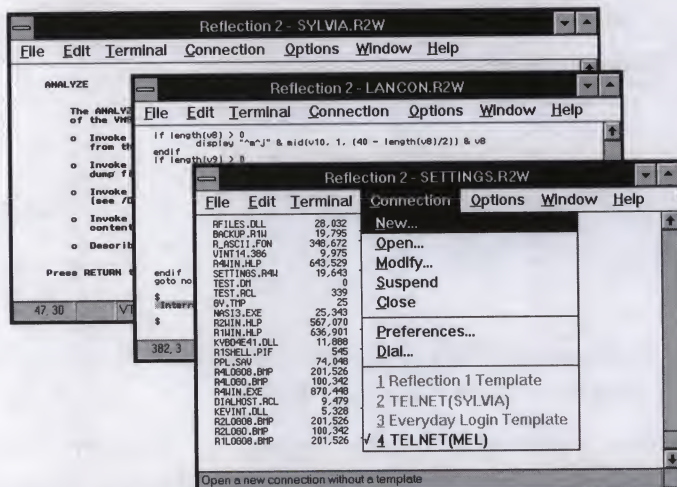
In this example, choose Connect. After a few moments, you should receive your host prompt.

Multiple Connections

To open multiple sessions in Reflection, start Reflection multiple times from the Program Manager; this creates additional “instances” of Reflection, and is the recommended method for establishing multiple sessions.

Note: Each additional instance uses only as much memory as the connection requires; memory for other functions is shared. ▲

The following figure illustrates the concept of initiating multiple instances of Reflection:



Managing Multiple Host Connections

When you run multiple instances, you can set up an icon for each one in the Program Manager. You can add the icon yourself or follow the steps on page 70. It's a good idea to change the Description text for the icon (choose Properties from the Program Manager's File menu) to something that identifies your connection.

As an alternative to creating multiple instances of Reflection, you can choose New from the Connection menu and create up to 16 sessions among all active copies of Reflection. In general, to do this you must be running some type of network software, such as the TCP Connection that's part of the Reflection Suite for TCP.

To switch between connections, press **[Alt]-[N]** or choose the session's name from the Connection menu. This method is *not* recommended, though; switching sessions within one copy of Reflection changes the connection only—screens and colors do not change, which could interfere with host applications.

Reconnecting

Besides opening a connection template to re-establish host communications, another way to re-establish communications, regardless of whether you're connecting over a network, serial line, or via a connection template, is to use the Reconnect command on Reflection's Connection menu.

When you have an active connection, this command reads Close; select it to shut down a connection (this does not shut down the TCP Connection software, however). The command then changes to Reconnect <connection>, where <connection> is the name of the connection last closed. To resume this connection, choose Reconnect.

This method is a shortcut for either opening the original settings file or connection template, or choosing New from the Connection menu and selecting this connection information.

Reflection Command Language

There are two ways to perform most Reflection tasks: by using Reflection's menus and dialog boxes, or with Reflection command language. Reflection command language is a powerful and flexible language, and you do not need any programming knowledge to use it.

With command language, you can:

- ▲ Change Reflection settings
- ▲ Transmit data to the host
- ▲ Send and receive files
- ▲ Wait for a specific signal from the host before proceeding

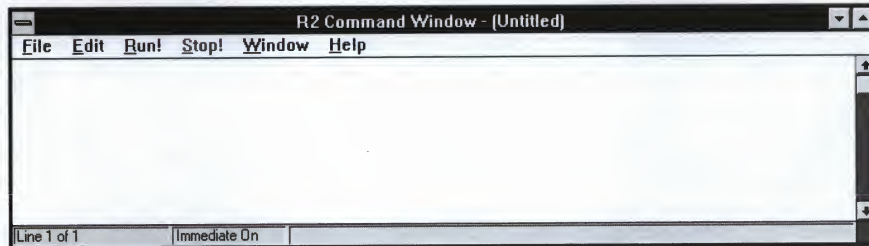
Command language is shared by the other products in the Reflection Series; with minor changes, a command file you create for Reflection 2 for Windows will also work with the DOS- and Macintosh-based emulators.

The Command Window

Using either Reflection's command window* or any ordinary text editor, you can put a series of commands into a command file to automate tasks that you perform on a regular basis, such as logging in and transferring files. When you work in the command window, you can execute single commands, groups of commands, or entire command files. You can also write command files, edit and print them, and save them to a disk file. Further, the command window is where the Script Recorder sends its commands, as described on page 116.

* The size of files you can open in the command window is limited to 32K bytes (about 32,000 characters); for reading and writing larger files, use your favorite Windows text editor or word processor and save the file in a text-only format.

To open the command window, choose Command Window from the Window menu, or press (Alt)-(Y):



Reflection Command Window

When you first open the command window, it is automatically positioned at the bottom of the terminal window so that both windows fit in your workspace (this is known as *tiling*, and is the default behavior). Once the command window is open, press (Alt)-(Y) again to switch between the terminal window and the command window.

The command window is similar to other Windows editors, such as Notepad. You can resize the command window, minimize it to an icon, or maximize it to full screen like any other window.

By default, saving your settings file saves the command window's size and position. The Save Window Positions check box in the Save/Exit Options dialog box (from the terminal window's Options menu) controls this.

There are three ways to execute commands in the command window. You can:

- ▲ Execute a single command
- ▲ Execute a selected group of commands
- ▲ Execute everything in the window

The following examples show you how to execute commands using each of these methods.

Executing a Single Command

Reflection commands can be executed one at a time; each command must be typed on a separate line. As you're writing a command file, you might execute commands one at a time to see their individual effects.

As an example of executing commands one at a time:

1. Press **[Alt]-[Y]** to open the command window.
2. Type `DIR`.
3. Choose Run! from the menu bar, or press **[Enter]**.

The `DIR` command displays the contents of your current PC directory in the terminal window. As the command is executing, the terminal window comes to the front and becomes the active window. When the command is done, the command window returns to the front and becomes the active window.

You can keep the command window in back after executing commands by using the Command Window in Front After Execution check box in the Command Window Preferences dialog box. If the terminal window and command window are tiled, the command window either becomes the active or inactive window without changing position.

Executing Selected Commands

You can execute a group of commands—either a number of lines or the entire contents of the command window.

As an example of executing a group of commands, try the following:

1. Press **Alt-Y** to open the command window.
2. Type the following lines, pressing **Ctrl-Enter** at the end of each line. Pressing **Ctrl-Enter** moves the insertion point to the next line in the command window, but does not execute the line as pressing **Enter** would; you can reverse this behavior, and have **Enter** move to the next line, by using the Immediate Mode command from the command window's Edit menu. Don't worry if you don't understand how the commands work—the online help explains each one in detail:

```
COPYCLIP "^M^JThis line will be copied to the Clipboard"  
;The PASTE command sends the text on the Clipboard to  
;the terminal window  
PASTE
```

3. Select all the lines you just typed. Either drag across the lines using your mouse, or choose Select All from the Edit menu.
4. Choose Run! from the menu bar.

When the commands are through executing, the command window returns to the front and becomes active. To halt a command file while it is executing, use the Stop! command in the command window's menu bar. The command window can always be brought to the front by clicking on it or by pressing **Alt-Y** while in the terminal window.

Executing the Entire Contents of the Command Window

In the previous example, you entered and executed a number of lines in the command window by first selecting them. You can also use a shortcut to execute the entire contents of the command window:

- ▲ Make sure *no* lines are selected, then choose Run! from the menu bar.

Moving within the Command Window

After you have entered text in the command window, you can easily move the insertion point anywhere in the text using the mouse. If you are accustomed to using the keyboard, refer to this table:

To move to the...	Press...
Beginning of the line	Home
End of the line	End
Next word	Ctrl-→
Previous word	Ctrl-←
Next line	↓
Previous line	↑
Next page of text	PgDn
Previous page of text	PgUp
Top of the command window	Ctrl-Home
Bottom of the command window	Ctrl-End

Getting Help in the Command Window

To get help on a command in the command window:

1. Highlight the command you need help with; for example, select the text DIR that you typed in earlier. Double-clicking on a word selects it.
2. Choose Help Selected Word from the command window's Help menu. This opens the Help window for the DIR command.

This has the same effect as opening Help's Search box and searching for the word DIR.

Working with Command Files

A group of Reflection commands form a command file. Command files let you automate tasks that you perform on a regular basis, such as logging in to the host or transferring files. You can use the command window to write and execute Reflection command files.

In the following exercise, you'll create a command file that establishes a Telnet connection to a UNIX host, waits for the login prompt, then sends your username and password to log you in.

1. Press **[Alt]-[Y]** to open the command window.
2. When Immediate Mode on the command window's Edit menu is selected (the default), commands you type are executed when you press **[Enter]**. Turn off Immediate Mode now by selecting this command from the Edit menu.

3. Enter the following commands, pressing Enter ↵ at the end of each line. A caret followed by a character is a *control code*. In this example, ^M performs a carriage return and ^J performs a linefeed. Lines that begin with a semicolon are optional—they are comment lines. When you see <username> and <password>, enter your own username and password. While entering text, take advantage of the command window's Edit menu commands, especially Undo, Copy, and Paste.

```
;this command file logs you in to a UNIX host using Telnet
CONNECT "<hostname>" USING TELNET
;for example, CONNECT "UNIXHOST" USING TELNET

TRANSMIT "^M"
;wait to be prompted for your name
;for a VMS host, change "login:" to "Username:"
WAIT 0:0:20 FOR "login:"
IF NOT FOUND
    MESSAGEBOX V1 PROMPT "No Login Prompt Found" ICON STOP
    STOP
ENDIF

TRANSMIT "<username>^M"
;for example, TRANSMIT "MARJORIE^M"

;wait to be prompted for your password
WAIT 0:0:20 FOR "Password:"
IF NOT FOUND
    MESSAGEBOX V1 PROMPT "No Password Prompt Found" ICON STOP BUTTONS OK
    STOP
ENDIF

TRANSMIT "<password>^M"
;for example, TRANSMIT "BIGPOP^M"
STOP
```

If you do not want to store your password in the login command file for security reasons, then replace the line:

```
TRANSMIT "<password>^M"
```

with the following:

```
ACCEPTBOX V8 PROMPT "Enter your password:" NOECHO
;NOECHO causes the password to display as dots when it is entered
TRANSMIT V8 & "^M"
LET V8 = ""
```

4. Choose Save As from the command window's File menu.
5. Type `LOGIN.RCL` in the File Name text box.
6. Choose Save. The command window title bar updates to show the file name.

Executing a Command File

To execute the login command file you just created, you could have used one of the methods you learned earlier for executing the contents of the command window. There is another way to execute an entire command file without opening the command window:

1. If you're currently logged in to the host, log out before continuing with the next step.
2. Choose Open from the terminal window's File menu.
3. From the List Files of Type list box, select *Command (*.rcl)*.
4. Select the command file `LOGIN.RCL`.
5. Choose the Run button.

As the command file executes, each command appears in Reflection's status bar. After the file is done executing, you should be logged into the host.

If you receive any error messages when the file executes (a syntax error due to a typo, perhaps), you can open the file in the command window and check to see that you've entered all lines correctly.

Stopping a Command File

While a command file is executing, you can cancel it by pressing `Ctrl`-`Y` or `Esc` in the terminal window, or by choosing the Stop! command from the command window's menu bar.

You can pause an executing command file by pressing `ScrollLock` or `Ctrl`-`S` (to pause) and `Ctrl`-`Q` (to resume).

Appending a Command File to the Reflection Icon

You can create a command file like the LOGIN.RCL file described above, and have it execute automatically every time you start Reflection. The procedure on page 70 (and specifically, step 5) explains how to do this.

Attaching a Command File to a Button

Once you've created a command file, you can attach it to a button on Reflection's button palette. To do this, follow the instructions on page 90 to create a button. In step 5 on page 91, choose *RCL Script* from the Action list box. Then, enter the name of the command file.

Mapping a Command File to a Keystroke

Another way to execute a command file is by mapping it to a PC keystroke, using the Keyboard Map Options dialog box. Select *RCL Script* as the Action, then enter the name of the command file. If you can't remember the name of the file, use the Browse button to locate the file; when you use the Browse button, the full directory path is included with the file name.

Using the Script Recorder

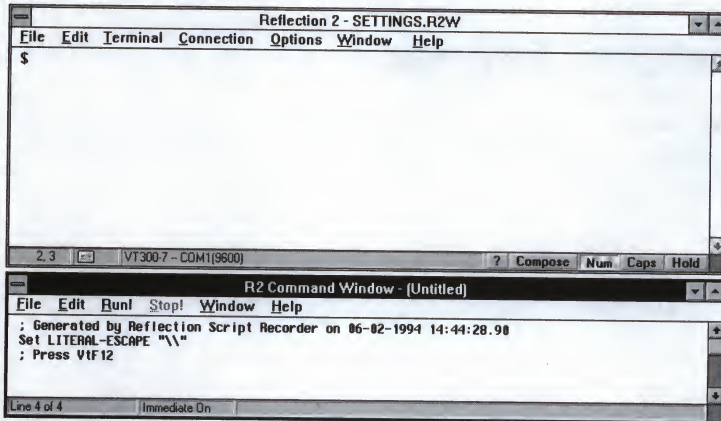
An easy way to get started writing command files and automating tasks is to use the Reflection Script Recorder, also called simply the *Recorder*.

The Recorder allows you to record your actions in a Reflection command file, similar to recording a macro in a word processing program. When recording is active, Reflection watches the data communications line, captures the prompts sent to and from the host, and records the commands that you issue.

As you work, the commands required to reproduce these actions are displayed in the Reflection command window. With the Recorder, you gain access to the power and convenience of Reflection command language without having to learn how to write command files. You can also use the Recorder to write more effective command files, and see how to turn actions into commands. Recorded scripts can be edited, if necessary, then saved and re-used.

Starting the Recorder

To start the Recorder, choose the Start Recording command from the Options menu. The command window opens, and you can watch as your actions are translated into Reflection commands:



Starting the Recording Option

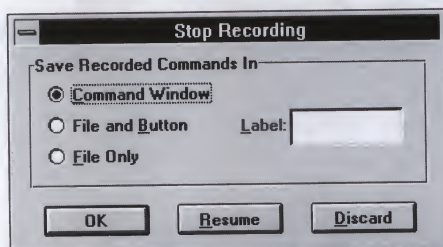
When the Recorder is active, a cassette icon appears in Reflection's status bar. Now, perform the actions that you want to record.

Starting the Recorder with Text in the Command Window

You can start and stop the Recorder as you're writing a command file—the resulting command file then becomes a collaborative effort between you and the Recorder. For example, if you forget the syntax for embedding a host prompt in your command file, choose Start Recording, press (Enter ↵) in the terminal window to get your host prompt, and then choose Stop Recording; the proper syntax is recorded and inserted at the current cursor position in your command file.

Stopping the Recorder

When you're done recording your actions, choose Stop Recording from the Options menu. If the command window was closed when you chose the Start Recording command (or was open but there was no text in it), a dialog box opens when you stop recording:



Stop Recording Dialog Box

You have three options for saving the recorded commands:

Command Window Select this option to retain the recorded commands in the command window. After choosing OK, the command window remains open. If you later want to save the command file, choose Save from the command window's File menu.

File and Button Select this option to save the recorded commands as a command file attached to a button on the button palette. When you select this option, "Untitled" appears in the Label text box; overwrite this with the text you want to appear on the button.

When you choose OK and name the command file in the Save File As dialog box, Reflection closes the command window and opens the button palette (if it was not currently displayed). A new button is added to the last position on the palette. For more information on the button palette, see "Creating a Button Palette" on page 89.

To save this new addition to the button palette, either save your Reflection settings file (choose Save from the File menu) or choose Save As in the Button Palette Options dialog box to save a button-palette-only settings file.

File Only

Select this option to save the recorded session to a command file. When you choose OK and name the script, the command window is closed.

After deciding what to do with the commands, you can either:

- ▲ Choose OK to halt the recording session and save the recorded commands as indicated in the Stop Recording dialog box.
- ▲ Choose Discard to stop the recording session and discard the commands captured by the Recorder. When you discard the commands and the Stop Recording dialog clears, the command window closes.
- ▲ Choose Resume to continue recording commands where you left off (that is, to act as if you had never selected the Stop Recording command at all).

Running a Recorded Script

There are two ways to run a script you've recorded:

- ▲ If you saved the script to a file, you can either choose Open from the terminal window's File menu and execute the command file, or you can open the command file in the command window and choose Run! from the menu bar.
- ▲ If you saved the command file to a button, click on the button to carry out the recorded actions.

To stop a command file once it is running, press **[Ctrl]-[Y]**.

Sample Recording Session

To create a command file that logs you into a host, go through the following steps:

1. Make sure the command window is closed and you are logged out of the host.
2. Choose Start Recording from the Options menu.

The command window opens and a comment line is inserted to record the current date and time.

3. Choose New from the Connection menu.
4. Select your Connection Type of *TELNET* and select a host as you normally would, then choose Connect.
5. Log into the host. You can see your commands appear in the command window as you perform each action.
6. Enter your password. (The password is not displayed in the status line when you run the recorded command file; however, it is stored in the file. Page 114 shows how to avoid storing a password in a command file.)
7. Choose Stop Recording from the Options menu.
8. In the Stop Recording dialog box, choose File and Button. Type in a label for the button, such as *Log Me In*.
9. Choose OK. The Save File As dialog box opens.

Enter a name for the command file, such as *LOGIN*.

10. Choose OK. The dialog box clears and the command window closes.

Now, log out of the host, choose Close from the Connection menu (to shut down the connection you just established), and try running the recorded command file: click on the button in the palette that reads "Log Me In."

If the command file does not work as you expect, you can either open the file in the command window to take a look at it, or you can repeat the whole process in case you made a mistake the first time.

Using Dynamic Data Exchange

Dynamic Data Exchange (DDE) is a way for two independent Windows applications to exchange information. Microsoft defined the DDE message protocol—a set of rules for how Windows applications can communicate with each other and share data—to allow fully automatic interactions between Windows programs. DDE requires no involvement on the part of the user. Reflection 2 for Windows provides full support for DDE. All DDE functions can be performed using Reflection command language commands.

Windows applications that support DDE communicate with each other by passing messages. Messages are transmitted using commands, explained in detail in the *Reflection Technical Reference*. A DDE interaction is called a *conversation*, and the participants in a conversation are the *client* and the *server* (referred to as a client-server relationship).

Applications that support DDE, such as Microsoft Word for Windows and Microsoft Excel, can communicate through Reflection to perform activities on the host. For example, Excel can use DDE and Reflection to automatically retrieve host data or transfer files at a certain time of day.

A Sample DDE Interaction

Writing DDE scripts is beyond the scope of this manual, so the best way to introduce DDE is to run a sample command file supplied with Reflection. This file was copied to the \SAMPLES subdirectory when you ran the Reflection Suite for TCP Setup program. The only requirement for running this script is that you have Microsoft Excel for Windows installed on your PC.

To run the sample DDE file:

1. Choose Open from the File menu to display the Open File dialog box.
2. Choose *Command (*.rcf)* from the List Files of Type list box.
3. Double-click on the SAMPLES subdirectory icon.
4. Select the file *dde_xl.rcf* and choose Run.

As the command file runs, it:

- ▲ Starts Microsoft Excel
- ▲ Starts a DDE conversation between Reflection and Excel
- ▲ Opens an Excel spreadsheet
- ▲ Sends host data from Reflection to Excel, updating sales values in the spreadsheet (in the example command file, the data is “canned,” and is not actually coming from the host).

The program keeps “looping” as the data is updated, until one of the data items reaches a certain value. These values are then formatted and displayed in Reflection’s terminal window. Excel calculates the total sales from the data sent by Reflection; the value is sent back to Reflection and displayed in its terminal window for each update loop.

Transferring Files

Using Reflection 2, you can transfer files between your PC and a VMS (including Digital VAX and Alpha AXP computers), ULTRIX, or UNIX system, or any host that supports the Zmodem, Xmodem, or Kermit protocols.

You can also transfer files via the Internet-standard File Transfer Protocol (FTP), using the Reflection FTP Client. FTP Client is a network application separate from Reflection 2, and is explained on page 143.

There are many reasons why you might want to transfer files between computers. For example, you might want to:

- ▲ Incorporate a text document from the host into a word processing application on your PC.
- ▲ Place files on the host so that other users can have access to them.
- ▲ Move a PC-formatted file (such as a Microsoft Word file) from one PC to another via the host.
- ▲ Move a host-formatted file from one host to another via your PC.

To transfer files, a Reflection file transfer program must be available on the host. The transfer programs required for VMS and UNIX hosts are supplied with the Reflection Suite for TCP and with each copy of Reflection.

This chapter presents an overview of file transfer, and then shows you how to send and receive files.

File Transfer Overview

If you're new to file transfer, the following questions and answers can help you gain a better understanding of how file transfers work.

What is a file transfer protocol?

The transfer *protocol* is the set of rules that two computers follow when transferring files between them. Files can be transferred only when both computers use the same protocol, and therefore follow the same rules. Protocols can also specify error-checking and correction rules to ensure that the information transferred is sent and received accurately.

What protocol does Reflection use?

By default, Reflection uses its own WRQ file transfer protocol; this is Walker Richer & Quinn's proprietary protocol. The WRQ protocol uses CRC-CCITT error-checking during each transfer to ensure error-free transmission. The WRQ protocol offers at least four major advantages over public domain protocols:

- ▲ Faster transfers: either fast file transfer (when connecting over Ethernet to a VMS host) or data compression is used to speed up the transfer.
- ▲ File transfer settings control: you can specify data translation parameters and other file transfer settings.
- ▲ Drag-and-drop interface: highlight one or more files and drag and drop them to the PC or host side of the WRQ File Transfer dialog box.
- ▲ Wildcard support: send or receive groups of files using wildcards.

What other protocols does Reflection support?

Reflection supports the Zmodem, Xmodem, and Kermit public-domain protocols and the Old-WRQ protocol (which uses the pre-version 4.0 file transfer host programs VAXLINK.EXE and unixlink).

What software do I need on the host to transfer files with Reflection?

To transfer files using the WRQ protocol, a file transfer program called VAXLINK2.EXE is required on a VMS host; the program called unxlink2 is required on a UNIX host. VAXLINK2.EXE and unxlink2 are included with the Reflection Suite for TCP and with every copy of Reflection, and may have already been uploaded by your system administrator; if so, file transfers should work (you may need to change one or two settings first). If the host program isn't available, procedures for uploading the host software are given in the *Reflection Technical Reference*.

How can I check for an existing WRQ host program?

On a UNIX host, you can check for an existing copy of unxlink2 by doing the following:

- ▲ At the host prompt, type `unxlink2 -v`

If unxlink2 is available, its version number is displayed. The recommended version is 1.13 or higher.

On a VMS host, you can check to see if a copy of VAXLINK2.EXE has already been installed and has been defined for use by all Reflection users by doing the following:

- ▲ At the DCL prompt, type `VAXLINK2 V`

If VAXLINK2 is available, its version number is displayed. To use the WRQ protocol, the version number of VAXLINK2 should be 2.40 or higher. If you find a copy of VAXLINK2 using this procedure, you need to make a change to the VMS file transfer settings before you can transfer files; this is explained on page 128.

If an error message is reported when you check for a host program, either the host program is not available, it's not defined on the host, or it's been given a different name. Check with your system administrator for more information.

What's the file transfer method?

When you choose the Transfer command from the File menu, the WRQ File Transfer dialog box offers a choice of three file transfer methods: ASCII, Binary, and Image. As a rule of thumb, you select a method based on the type of file you are transferring:

Use this method:**When transferring files:**

ASCII

Between a PC and a host or PC and a Macintosh (text-only) via a host. Use this method when transferring files that contain text that you can read in an editor like Notepad or the Reflection command window.

Binary

Between two PCs via a host (preserves PC-specific information). Use this method for transferring formatted files—this includes sharing files, such as Microsoft Word document files, between a PC and a Macintosh.

Image

Between two host computers via the PC. This method should only be used when you need to preserve host attribute information.

How do I know what values to set for a transfer?

If you're using the SETTINGS.R2W file supplied with the Reflection Suite for TCP software for a UNIX host, the settings necessary for UNIX file transfers are already configured (though you may want to confirm these in the File Transfer Setup dialog box).

Walker Richer & Quinn also supplies a collection of configuration settings for transferring files to different hosts in a variety of situations, saving you the trouble of having to know what values to set (these "predefined settings" are explained on page 137).

For example, if you want to dial into a bulletin board (such as the WRQ bulletin board), choose Transfer Setup from the File menu. Then, click on the Predefined Settings button and choose *Zmodem Protocol to BBS*; all appropriate values are automatically adjusted for transferring files in this environment.

What should I check if a transfer fails?

Either click on the Help button in the WRQ File Transfer dialog box, or choose Troubleshooting from the terminal window's Help menu and in the Help window, select from the "Transferring files" topics. This offers solutions to many common file transfer problems, such as using Predefined Settings for troubleshooting and instructions on uploading the host program.

Now that you have a better understanding of the file transfer process, work through the following procedures to learn how to send and receive files.

Setting Up for File Transfers

Before you can transfer files, you may first need to configure a few file transfer settings in the File Transfer Setup dialog box. If you're using the `SETTINGS.R2W` file supplied with the Reflection Suite for TCP software for a UNIX host, your file transfer settings should already be correct (though you may want to confirm them).

If, on the other hand, you're on a VMS host and `VAXLINK2` is defined for all Reflection users (which you can determine using the procedure on page 125), you need to change the Host System Type and Host Startup Sequence before transfers will work.

To configure your file transfer settings:

1. Choose the Transfer Setup command from the File menu.
2. In the File Transfer Setup dialog box, do the following:

If you're connected to a UNIX host:

The Host System Type should be `UNIX`, and the Host Startup Sequence should read `unxlink2`. If you need to configure these, click on the Predefined Settings button, select "WRQ Protocol to UNIX," then click OK. This changes the Host System Type, the Host Startup Sequence, and clears the Change Tabs to Spaces check box (which is not visible in the File Transfer Setup dialog box).

If you're connected to a VMS host:

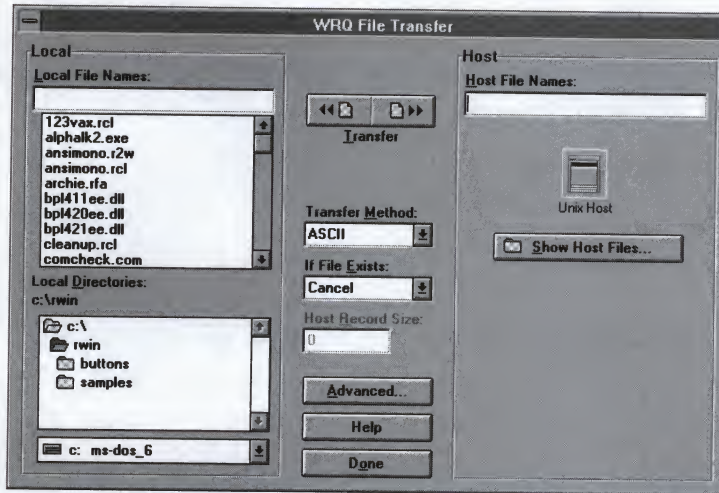
Click on the Predefined Settings button, select "WRQ Protocol to VMS," then click OK. This changes the Host System Type to `VMS`, the Host Startup Sequence to `RUN VAXLINK2`, and selects the Change Tabs to Spaces check box (which is not visible in the File Transfer Setup dialog box). If `VAXLINK2` is defined for all Reflection users, remove the word "RUN" from the Host Startup sequence so that it reads just `VAXLINK2`.

3. Click OK to close the File Transfer Setup dialog box.

If you want to retain these settings with your other Reflection settings, save your settings file.

Transferring Single Files

All file transfers using the WRQ protocol are done from the same dialog box for both sending and receiving files. With the Transfer Protocol set to WRQ, choose the Transfer command from the File menu to open the following dialog box:



WRQ File Transfer Dialog Box

This dialog box allows you to transfer files between the host and PC using any combination of the following methods:

- ▲ Highlight a file name and click the Transfer button pointing in the direction of the transfer. If you do not enter a name for the receiving file, the file is given the same name as the file you are sending.
- ▲ Enter names in both the Local File Names text box and the Host File Names text box, and click the Transfer button.

- ▲ Enter a wildcard entry in the appropriate File Names text box; the receiving text box must be empty (or you can specify a path only). Then, click the Transfer button—the files are given the same name on the receiving end as they had on the sending end.
- ▲ Highlight one or more file names, and drag the group of files over to the Host icon or into a local directory/host folder or click the Transfer button. Hold down the **(Shift)** key to select a range of files, or hold down **(Ctrl)** and click to select multiple, individual files. Hold down **(Ctrl)** and click once on a highlighted name to deselect it.

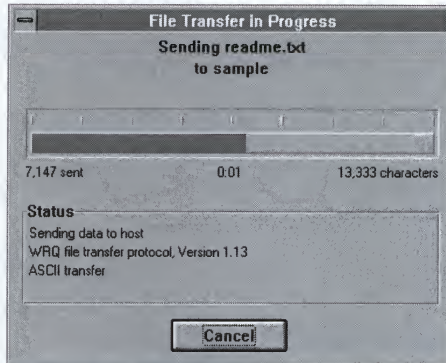
To select *all* files, first position the cursor in the File Name Area, then press **(Ctrl)-[J]**. To deselect all files, press **(Ctrl)-[V]**.

Sending a File

In this exercise you will send a PC file (the README.TXT file) to the host:

1. In the WRQ File Transfer dialog box, if necessary change to the TCP Connection directory (by default, WRQNET).
2. Type README.TXT in the Local File Names text box, or select this file from the Files box.
3. Type SAMPLE in the Host File Names text box.

4. Click the right Transfer button (with the arrow pointing towards the host side of the dialog box) to transfer the file to the host. The file transfer in progress window opens when the transfer begins:



File Transfer in Progress Window

(If you receive an error message and cannot transfer files, see page 127 for information on how to troubleshoot the problem.)

5. When the transfer completes, the file transfer in progress window closes.

After the file is sent:

- ▲ README.TXT is still stored on your PC.
- ▲ A file named SAMPLE (a copy of README.TXT) is now stored on the host.

Using Drag and Drop

If the file you're transferring will have the same name on the receiving side, you can use the drag-and-drop method for transferring the file:

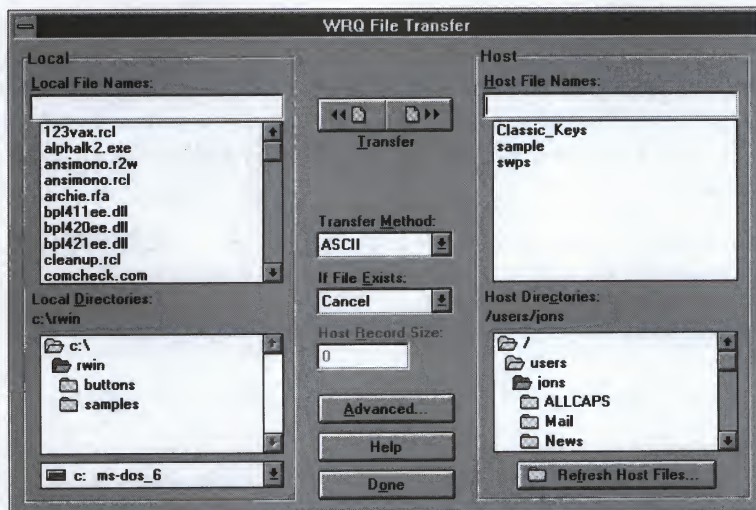
1. In the WRQ File Transfer dialog box, highlight the README.TXT file from the list of files shown under the Local File Names text box.
2. With the mouse pointer over the highlighted file name, hold down the left mouse button and drag the file over the right Transfer button or over to the Host icon (you can also drag a file into a host folder after choosing the Show Host Files button; this is described in the next procedure).

You know you're holding the mouse in the proper area for a transfer when the icon you are dragging changes from a circle with a slash through it to an icon that is similar to the document shown by the Transfer buttons.

3. Release the mouse button; the file transfer in progress window opens and shows README.TXT being transferred to the host.

Receiving a File

Before receiving files from the host, choose the Show Host Files button in the WRQ File Transfer dialog box. This performs a short file transfer to download a listing of your host files. After a few moments, the host side of the dialog box changes to look something like the following figure:



WRQ File Transfer—With Host Directories

The Host Directories information is added, and the Show Host Files button changes to read Refresh Host Files.

If you're already familiar with selecting files in Reflection or other Windows applications, you'll be able to navigate around your host system using familiar methods such as selecting a directory name by clicking on a folder icon.

Note: The host file list is *not* automatically updated after a file transfer. To confirm the receipt of any files you transferred from the PC to the host and to update the host file list, you must choose the Refresh Host Files button. ▲

Now, you will receive the file SAMPLE you sent to the host earlier:

1. In the WRQ File Transfer dialog box, choose Refresh Host Files.
2. Click on the file called SAMPLE from the list of host files; its name appears in the Host File Names text box. When you use the mouse to select a host file, the Local File Names text box is cleared.
3. Type TEST.DOC in the Local File Names text box.
4. Click the left Transfer button (with the arrow pointing towards the local side of the dialog box) to transfer the host file SAMPLE to your PC, and save it locally as TEST.DOC. When the transfer is complete, the file transfer in progress window closes.

After the file is received, the host file SAMPLE (a copy of README.TXT) is now stored on your PC as a file named TEST.DOC.

Transferring Multiple Files

You can transfer groups of files between your PC and the host using wildcard characters:

- ▲ An asterisk (*) represents none or any number of characters. `PA*.*`, for instance, represents all files that begin with `PA`, including files that do not have a file name extension.
- ▲ A question mark (?) represents any single character. `R?WIN.HLP`, for instance, represents all files beginning with `R`, having any second character followed by `WIN`, and ending with the extension `.HLP`.

In this procedure, you'll send a group of RCL files from your Reflection directory to the host:

1. In the WRQ File Transfer dialog box, type `*.RCL` in the Local File Names text box.

Wildcards are valid only in the source specification for a file transfer. For example, if the Local File Names field contains wildcard characters, the Host File Names field must either be blank or a valid host directory. Likewise, if you're transferring a group of files from the host to the PC and the Host File Names field contains a wildcard file specification, the Local File Names field must be blank or a valid PC directory.

2. Clear any name from the Host File Names text box; the files will have the same file name on the host as they do on the PC.
3. Click the right Transfer button (with the arrow pointing towards the host side of the dialog box) to transfer the files to the host. The file transfer in progress window shows each file as it is transferred.

You can limit wildcard selections with date and time filters using options in the Advanced File Transfer Options dialog box; this is explained in the *Reflection Technical Reference*.

Using Drag and Drop

You can also use the drag-and-drop method for transferring multiple files. This is the method you should use when the files you are transferring don't match any common wildcard specification.

To drag and drop multiple files:

1. Choose *Overwrite* from the If File Exists list box.
2. In the Host File Names list of files, highlight the README.TXT file that you transferred earlier.
3. While holding down the **Ctrl** key, highlight the file called SAMPLE (one of the other files you transferred earlier).

Holding down **Ctrl** allows you to select multiple, individual files. Hold down the **Shift** key to select a contiguous range of files. Hold down **Ctrl** and click once on a highlighted name to deselect it.

4. With the mouse pointer over either of the highlighted file names, hold down the left mouse button and drag the files over the left Transfer button or over to the list of Local File Names.

You can also drag a file or group of files into a local PC directory. To do this, simply drag the files over the folder icon that represents the directory.

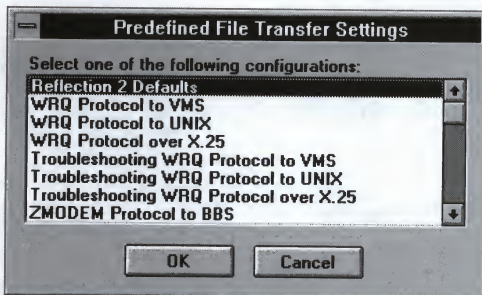
5. Release the mouse button; the file transfer in progress window opens and shows the files being transferred from the host to your PC.

Predefined Transfer Settings

Walker Richer & Quinn supplies a collection of transfer configuration settings for transferring files to a variety of hosts in a variety of situations. These settings come directly from our technical support personnel, who regularly help customers set up Reflection for transfers in these environments.

With the predefined transfer settings, you can configure transfers in one step, instead of selecting and clearing a variety of check boxes:

1. Choose Transfer Setup from the File menu.
2. Choose the Predefined Settings button:



Predefined File Transfer Settings

3. Highlight a predefined setting, then choose OK.

After you choose OK, Reflection automatically adjusts the appropriate values in the File Transfer Setup dialog box for the environment you select.

If a value is not shown in the File Transfer Setup dialog box but needs to be changed, a message box advises you of the items that will be changed.

4. If any File Transfer Setup message boxes appear, clear each one by choosing OK.
5. Choose OK to close the File Transfer Setup dialog box, and use the Transfer command from the File menu to transfer files in this environment.
6. If transfers work successfully, choose Save from the File menu to save your settings file.

Using Zmodem to Connect to WRQ's BBS

The following steps explain how to configure Reflection for a Zmodem transfer to or from the WRQ bulletin board. In this example, the connection is established over the Internet using Telnet. If you don't have direct access to the Internet from your PC, you can also connect using a dial-up modem connection; the *Reflection Technical Reference* explains how to configure Reflection for modem connections.

To connect to the WRQ bulletin board (BBS) and transfer files using Zmodem:

1. Start Reflection (if it isn't already running).
2. Choose Transfer Setup from the File menu, select *Zmodem* from the Transfer Protocol list box, then choose OK.
3. Establish a connection to the bulletin board: Choose New from the Connection menu, and in the New Connection dialog box, select *TELNET* as the Connection Type. In the Host Name field, enter the Internet address of the WRQ BBS: `bbs.wrq.com` or `150.215.17.124`.

The instructions on page 68 explain how to create a new connection to the WRQ BBS using Telnet, then save the settings to a named settings file.

If you don't have Internet access and want to dial into the WRQ BBS using a modem:

- ▲ In the United States, dial 206.217.0145.
 - ▲ In Europe, dial WRQ's satellite BBS at +31.70.356.2725.
4. When you get the "First Name?" prompt, sign on to the bulletin board by responding to the prompts.

Downloading a File from a Bulletin Board using Zmodem

By using Reflection's default file transfer setup values, the following procedure shows you how to receive a file from a bulletin board using Zmodem's automatic downloading feature:

1. After connecting to the bulletin board, follow the menus to get to the area where the files are stored.

If you're connected to WRQ's BBS and are at the Main Menu, press **[F]** to get to the Files Menu, **[D]** for the Download Files option, and then select a file area.

2. Configure the bulletin board to use the Zmodem protocol.

If you're connected to WRQ's BBS, press **[P]** for <Protocol>, followed by **[Enter ↵]**. Press **[Z]** for ZMODEM-90, then press **[D]** for the Download Files option.

3. Enter the file name, then press **[Enter ↵]** to initiate the transfer from the bulletin board.
4. As the transfer proceeds, Reflection's file transfer in progress window shows you the status of the transfer.
5. To cancel the transfer at any point, click Cancel in the file transfer in progress window, or press **[Esc]**.

The file is transferred to the current working directory on your PC.

Sending a File to a Bulletin Board using Zmodem

To transfer a file to a bulletin board using Zmodem:

1. After connecting to the bulletin board, tell the bulletin board that you want to upload a file.

If you're connected to WRQ's BBS and are at the Main Menu, press **[F]** to get to the Files Menu, then press **[1]** for the Upload Files to WRQ Tech Support option.

2. If prompted (as you are by WRQ's BBS), enter the name you want assigned to the file after it is uploaded to the bulletin board.
3. Choose Transfer from Reflection's File menu, and from the cascading menu choose Send.
4. Double-click on the file you want to send in the Files list box, or type the name in the File Name text box and choose OK.
5. Accept the proposed method of *Binary* by clicking the Send button in the Send File to Host (Zmodem) dialog box.

The file transfer in progress window opens.

6. To cancel the transfer at any point, click Cancel in the file transfer in progress window, or press **[Esc]**.

SECTION
3

Network Applications and Utilities

A number of network applications and utilities are included with the Reflection Suite for TCP to give you access to FTP servers, remote printers, and to help diagnose network problems.

This section explains how to use a number of these applications: Reflection FTP Client, LPR, Ping, Network Configuration, and the Event Viewer.

The Reflection Network Series *Technical Reference* explains in detail all of the network applications and utilities included with the Reflection Suite for TCP.

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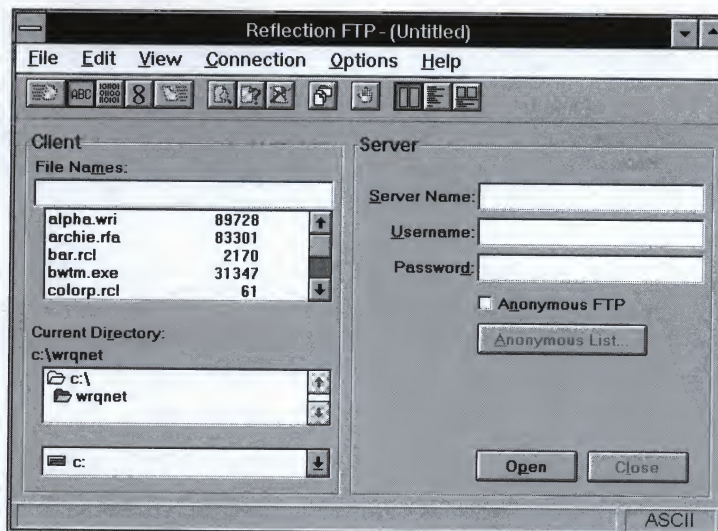
Reflection FTP Client

Reflection FTP Client is a Windows application that lets you move files between your PC and a host server using the high-speed Internet-standard File Transfer Protocol (FTP). Using Reflection FTP Client, you can connect to an FTP server running on a UNIX, VMS, IBM, HP, or other host. You'll find the high speed of FTP transfers particularly handy for transferring large files.

The Reflection Suite for TCP includes two different FTP applications—FTP Client and FTP Server. This chapter introduces you to FTP Client, also called “Reflection FTP.” Double-click the RNS Help icon or check the Reflection Network Series *Technical Reference* to find out about FTP Server.

Starting Reflection FTP

After starting Microsoft Windows, double-click the Reflection FTP icon in the Reflection program group to start Reflection FTP. When Reflection FTP first opens, it looks like this:



Getting Help

There are three ways to get help in Reflection FTP:

- ▲ Press **F1** to see help on the current dialog box or window.
- ▲ Choose a command from the Help menu.
- ▲ Type `help` on the FTP command line to see a listing of all commands.

The Button Bar

The Reflection FTP button bar contains clusters of buttons you can use to preview, transfer, and delete files, refresh the directory displays, cancel commands, and change the Reflection FTP window view. Clicking a button in the button bar provides an alternative to choosing commands from the FTP menu bar or issuing commands at the FTP command line.

From left to right, the following buttons appear in the button bar:



Transfers one or more PC files to the server.



Sets the current FTP file transfer method to ASCII. Use this transfer method to move ASCII (text) files between the FTP server and your PC.



Sets the current FTP file transfer method to binary (image). Use this transfer method to move files with PC-specific or server-specific formatting between the FTP server and your PC.



Sets the current FTP file transfer method to Tenex (also known as Local 8). Use this transfer method to move files to or from an FTP server that uses a non-8-bit byte (such as the DECsystem-20).



Transfers one or more server files to your PC.



Displays a portion of each selected client or server file in the Preview window. This is handy when you want to see the contents of the file so that you can confirm the file type (ASCII or binary) before sending it.



Displays file information for the selected client or server files—for example, date and file size.



Deletes the selected client or server files.



Refreshes the client or server directory listing.



Cancels processes such as a login to a server, a file transfer, or an update to the current server directory listing.



Selects the normal drag-and-drop window view.



Selects the command window view.

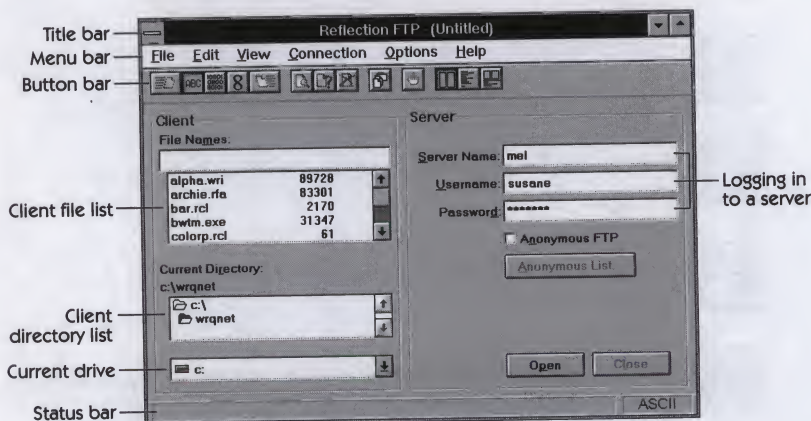


Selects a split window view, providing access to both the drag-and-drop transfer method and the command line.

Setting Up a Connection to an FTP Server

The steps below assume you are starting Reflection FTP for the first time, without a settings file. The title bar reads *Reflection FTP - (Untitled)*. If you started Reflection FTP with a settings file, or the title bar contains the name of the actual settings file instead of Untitled, choose New from the File menu to reset Reflection FTP to its factory defaults.

1. Double-click the FTP Client icon to start the program.
2. The Reflection FTP startup screen appears, and after a few moments the Reflection FTP window opens. To connect to an FTP server, fill in the Server information on the right side of the window.



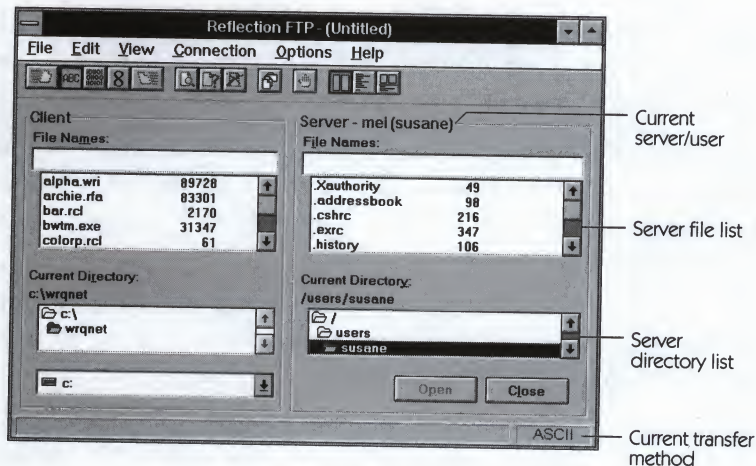
3. In the Server Name text box, enter the name of the FTP server to which you want to connect. The server name is resolved by the Hosts file on your PC or by a domain name server on your network. If you have no domain name server on the local network and don't use a Hosts file, you must specify the full IP address of the FTP server; for example, 124.24.36.85.

If you need to confirm the location of your Hosts file, click once on the RNS icon on your desktop and choose About RNS. The Network information summary includes the path to your Hosts file and the type of domain name resolution you're configured for. For more information about the Hosts file, see page 164.

4. Tab to the Username text box and type in your username as it is registered on the FTP server. If the server is case sensitive, be sure to use the appropriate case.
5. Tab to the Password text box and enter your password on the FTP server. To preserve security as you type in the Password text box, each character is displayed as an asterisk (*).
6. Choose Open. Reflection FTP opens a connection to the server and logs in using the connection information you provided.

Some FTP servers request an account name as part of the login sequence. If so, you'll see a prompt for an account name as part of the connection process.

After you finish logging in, the server side of the Reflection FTP window displays a list of the files in the current server directory and a list of available server directories, as shown in the following figure:



Saving Your Connection Settings

If you have connected to an FTP server that you plan to use frequently, you should save your current settings to a Reflection FTP settings file. Reflection FTP settings files typically have the extension RFW.

If you have created a settings file called SETTINGS.RFW, Reflection FTP automatically loads this file when you start the program. If this file is not found, Reflection FTP starts with its factory default settings and an untitled window appears.

Setting Up for File Transfer

You can transfer files in Reflection FTP using drag-and-drop controls, buttons on the button bar, or the Put and Get commands on the File menu. You can transfer any type of file—not merely text files—to and from a server.

Before you can transfer files using Reflection FTP, you must connect to an FTP server, as explained in the previous section. You must also decide the file transfer method and what to do if the file already exists in the target location.

To select a file transfer method, use the buttons in the button bar, or the commands in the Reflection FTP Options menu. Choosing a file transfer method defines the type of file being transferred and determines how to handle the data during the transfer. The two most common methods are:

- ▲ ASCII—use this method to transfer a text file from your PC to the server or from the server to your PC. Use the ASCII method if a file can be opened and read in the Reflection FTP Preview window.
- ▲ Binary—use this transfer method to transfer binary files, such as program-specific files, between two PCs (via a server), or between two servers (via a PC).

You can tell Reflection FTP what to do if the file already exists in the target location using commands in the Options menu:

- ▲ Cancel—the transfer is cancelled when a file with the same name already exists in the target location.
- ▲ Append—appends the file to an existing destination file with the same name.
- ▲ Overwrite—overwrites the specified file in the target location.

Practicing FTP Transfers

In the exercises below, you'll use a variety of FTP options while transferring a file.

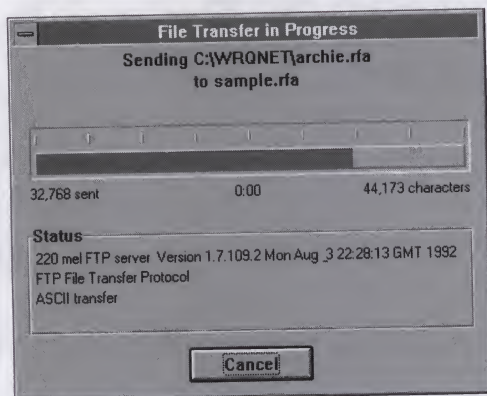
Sending an ASCII File to the FTP Server

In this exercise, you will send a PC client file (the Reflection FTP file ARCHIE.RFA) to your FTP server:

1. Start Reflection FTP and connect to your FTP server (see page 146 for details).
2. Confirm that your current directory is where Reflection FTP is installed (for example, \WRQNET).
3. Type ARCHIE.RFA in the Client File Names text box, or select this file from the list of client files.
4. The ARCHIE.RFA file is a plain ASCII text file, so the transfer method should be set to ASCII. Use the ASCII button on the button bar, or the ASCII command in the Options menu.
5. Type SAMPLE.RFA in the Server File Names text box.

6. Click the Transfer to Server button to transfer the file to the FTP server.

The File Transfer in Progress window opens when the transfer begins.



When the transfer is complete, the File Transfer in Progress Window closes. After the file is sent:

- ▲ ARCHIE.RFA is still stored on your PC.
- ▲ A file named SAMPLE.RFA (a copy of ARCHIE.RFA) is now stored on the FTP server.

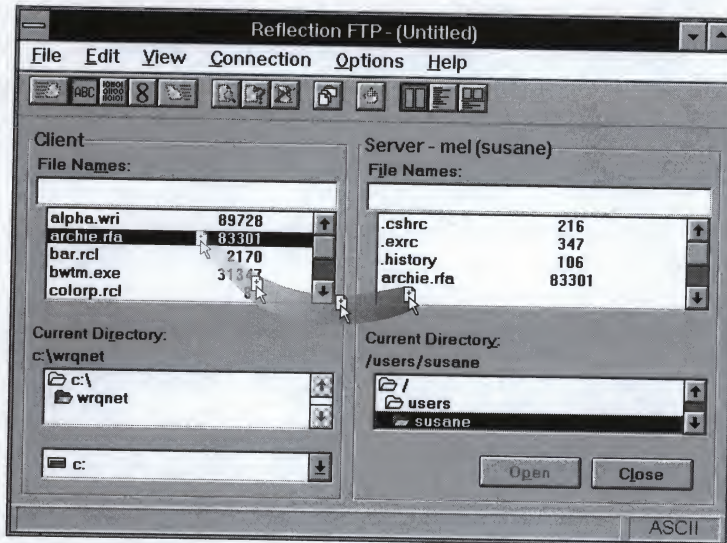
Drag and Drop—Transferring a Single File

If the file you're transferring will have the same name on the receiving side, you can use the drag-and-drop method for transferring it:

1. Click the ARCHIE.RFA file in the list shown under the Client File Names text box.

2. With the mouse pointer over the highlighted file name, hold down the left mouse button and drag the file into the Server File Names list box.

You know you're holding the mouse in the proper area for a transfer when the icon you are dragging changes from a circle with a slash through it to a file icon.



3. When the file icon is over the Server File Names list box, release the mouse button.

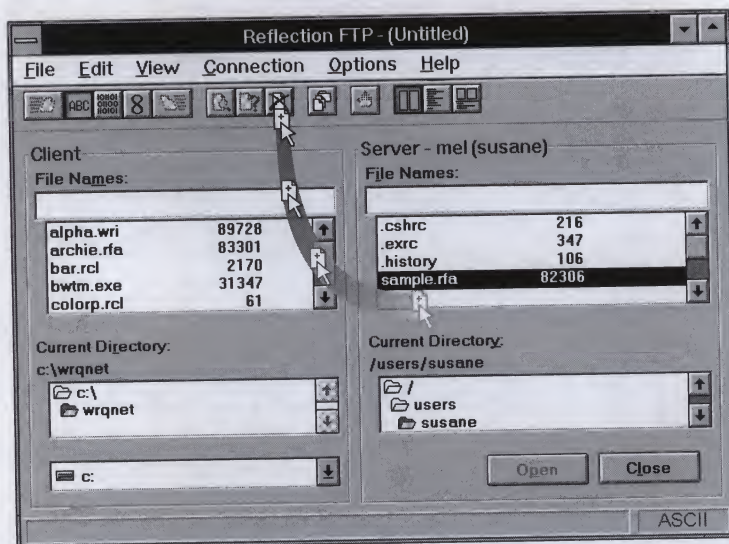
The File Transfer in Progress Window opens and shows ARCHIE.RFA being transferred to the FTP server.

Deleting Files

Reflection FTP allows you to delete selected files from the current PC or FTP server directory (provided you have privileges to delete server files). The simplest way to delete a file is to select it from the Client or Server File Names list box and press the Delete key on your keyboard, or use the Delete button on the button bar. You can delete multiple selected files in the same way.

In this example, you'll use drag-and-drop to delete the file you copied to the FTP server in earlier procedures:

1. Select SAMPLE.RFA in the Server File Names list box.
2. Drag the selected file to the Delete button on the button bar (or click the Delete button if you prefer).



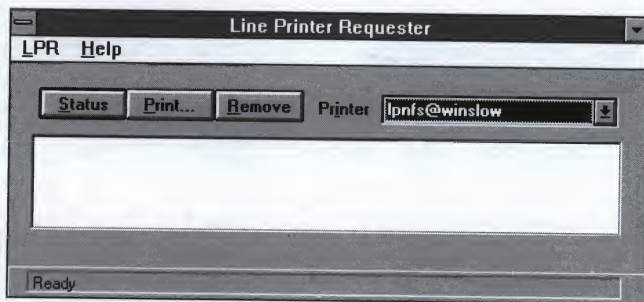
3. Reflection FTP asks you to confirm that you want to delete the server file. When you click OK, Reflection FTP deletes the file and refreshes the server directory listing.

Printing with LPR

LPR, or line printer requester, lets you print from your PC to remote printers connected to other machines on the network.

The LPR utility lets you define a remote printer, send print jobs to the defined printer, check the status of the remote print queue, remove print jobs, and reset the printer.

To start LPR, double-click the LPR icon in your Reflection program group. The Line Printer Requester dialog box opens:



Before you can send a print job to a remote printer, you must have a printer configured. If you don't see any printers in the Printer list box, the steps below explain how to define a printer. If you already have one or more printers configured, use the Printer list box to select the one you want to use.

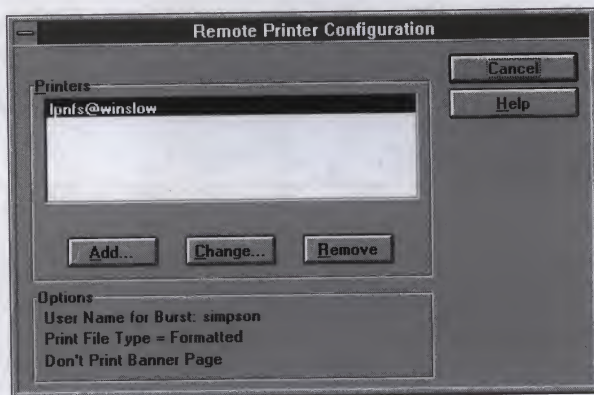
For complete information about LPR, see the Reflection Network Series *Technical Reference*.

Defining a Printer

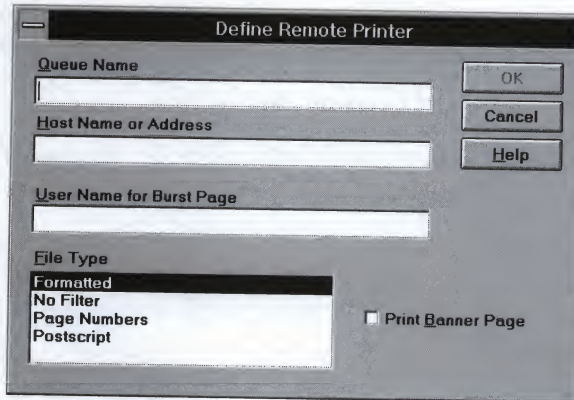
To define a print queue, you must have the appropriate privileges on the system that manages the printer. You also need to specify a queue name, host name, and other configuration settings for the printer you want to use. Consult your system administrator for the information you'll need to provide to define a printer. Then follow these steps to define the printer:

1. Choose Setup from the LPR menu.

Any printers that are already defined are listed in the Printers window.



To configure a new printer, click Add. You'll see the Define Remote Printer dialog box:



2. In the Queue Name text box, type the name of the print queue on the host that offers the print service. The queue name must be one that the host system recognizes.
3. In the Host Name or Address text box, enter the IP address of the host offering the print service; for example, 123.123.123.19. You can type in a name rather than an IP address if you have a Hosts file or a domain name server that can resolve the name to its IP address.

4. In the User Name for Burst Page text box, type your name or Internet identifier.
5. Select a default file type for this printer from the File Type list. Make sure that the type you select is supported by the print queue. If necessary, you can override this setting later when you select files to print.

LPR supports several print file types:

- ▲ Choose Formatted if the files contain only ASCII characters and any of the following control characters:

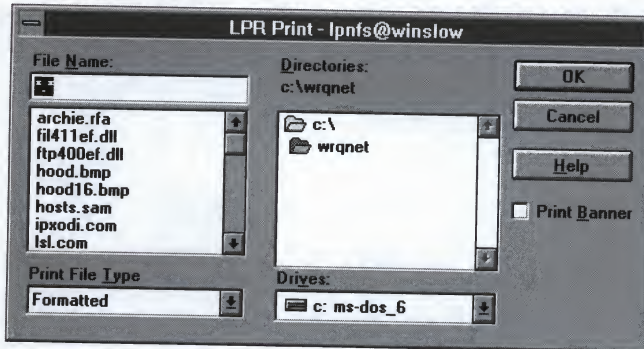
- carriage return
- linefeed
- formfeed
- horizontal tab
- backspace

- ▲ Choose No Filter if the files contain ASCII characters and any control characters from 0–32.
 - ▲ Choose Page Numbers if the files fit the same criteria as the Formatted option, but you want a header that includes the date and time of printing, the file name, and a page number for each page printed.
 - ▲ Choose PostScript only if the file is already in PostScript format. No PostScript formatting is performed by LPR; instead, this option allows the print job to bypass any PostScript print driver on the target machine offering the print service.
6. Select Print Banner Page if you want a banner page with summary information printed as part of the print job. You can override this setting later when you select files to print.

Sending Print Jobs

After you're set up for a remote printer, use these steps to send a print job to the selected printer:

1. Choose Print to open a browse box and select the files you want to print.

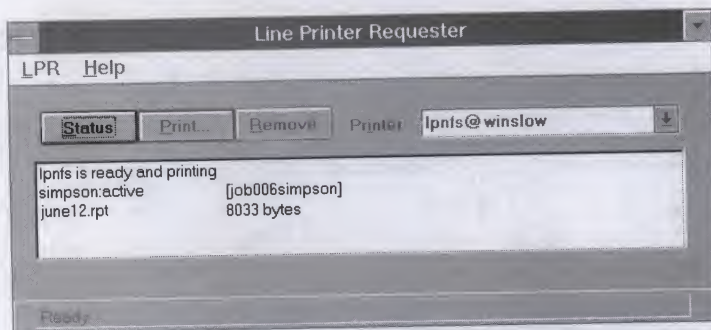


You can select multiple files: press **(Shift)** and select a group of files, or press **(Ctrl)** and select several individual files. The Print File Type shown below the list box should apply to all the files you select.

2. Select a file type from the Print File Type list box. The initial file type is based on the settings for the currently selected printer. You can change the Print File Type for each print job. For example, if the default file type for this printer is Formatted (a file with ASCII characters and carriage returns), you can choose the Page Numbers type so that this job includes the date and time of printing, the file name, and a page number for each page printed.
3. Select the Print Banner check box if you want user information to be printed on a banner page. This option is already selected if it is part of the printer's default definition.
4. Click OK to send the selected files to the printer.

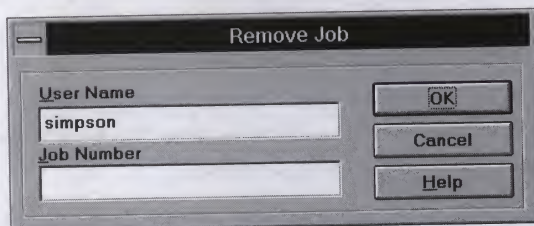
Checking Status

If you want to check the availability and the job queue of a selected printer, choose the Status button. A status message is displayed in the line printer requester window.



Removing a Job

To remove a print job from the queue, select the job you want to remove and choose Remove. You must have sufficient privileges on the host to remove the job; for example, you may not be able to remove jobs submitted by other people.



You can confirm the user name and job number before removing the job. To remove all print jobs associated with a user name, clear the Job Number box.

Resetting a Printer

Use the Reset Printer command on the LPR menu if you need to reset a printer before or after sending a print job. This option is useful if you need to clear a job in progress that is not printing correctly.

The Ping Utility

If you can't connect to a host on your network, you can use Ping to determine whether your PC and other hosts on your network are functioning, and to help locate the source of the problem. Ping is a network diagnostic tool that uses the Internet Control Message Protocol (ICMP) echo request datagram to elicit an ICMP echo reply from a host or gateway.

Because Ping datagrams generate a large volume of network traffic, they can congest a network and slow it down for all users. Don't use Ping during normal network transactions.

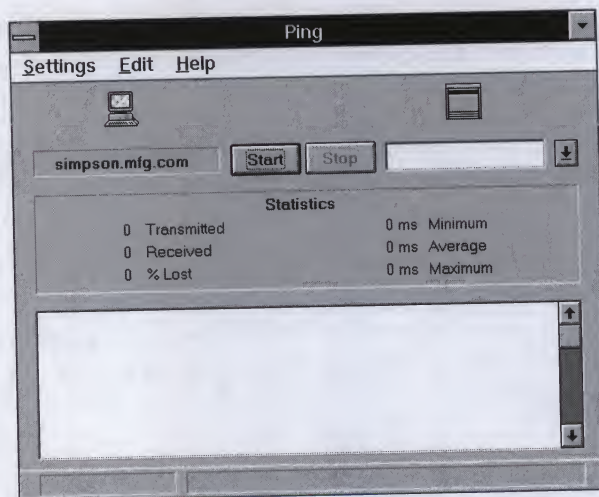
When using Ping for fault isolation, you should first use it on your local network to verify that your network interface card is functioning. If the session is successful, you can use Ping to check on hosts and gateways in other, more remote networks. Ping provides an easy way to confirm that your host is responding even if you are not able to run an application or establish a host session in Reflection.

The following example shows how you can determine whether a host is working by pinging that host. The Reflection Network Series *Technical Reference* explains all of the Ping options in detail.

Sample Ping Session

Suppose you cannot establish a connection with Reflection 2 to your UNIX host called `barter`. You could connect successfully in previous sessions, so you want to determine if `barter` is still running. You can use Ping to determine this information by performing the following steps:

1. Double-click the Ping icon in your Reflection program group to start the Ping utility. The Ping dialog box opens and looks like this:

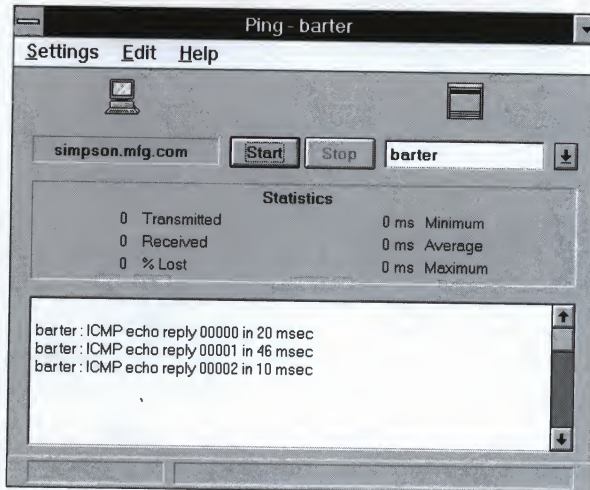


Ping Dialog Box

The name under the PC on the left-hand side of the dialog box shows the PC host and domain name from your network configuration information. The right-hand side of the dialog box lets you select a host or type in a name or IP address of the machine you want to ping. The entries in the list box come from the Hosts file on your PC, if one exists. The bottom of the dialog box contains the ping results.

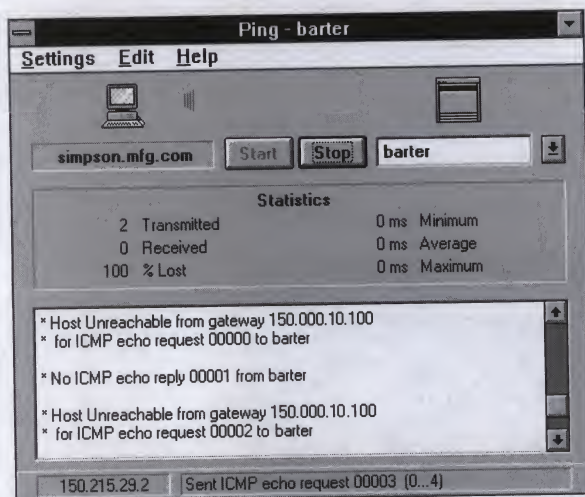
2. If the host named `barter` is in your Hosts file, select it from the list box on the right. You can also type the name `barter` in the text box; if the name is not in the Hosts file (or if you don't have a Hosts file), a domain name server is used to resolve the name to its IP address (if domain name server information is defined in your network configuration information). You can also directly enter the IP address of `barter` in the text box.
3. To start pinging the host called `barter`, click the Start button.

As ping requests are sent to the host, the bottom of the dialog box starts to fill:



In this case, `barter` is responding to the ping requests, which confirms that the host is working and your PC can communicate with it. If you still cannot connect to `barter` with Reflection, there may be another problem on the host or perhaps Reflection is misconfigured.

If `barter` had failed to respond to the ping requests, the dialog box would look something like this instead:



When a host fails to respond to a ping request, the host may be temporarily out of service, or there may be another problem on the host or network. For example, an intervening gateway machine may be down, in which case your requests may never be reaching the host. In this case, you can try pinging the gateway computer (if you know its name or address) to see if it responds. The results of your ping tests can often help a network administrator determine the source of the problem.

The Network Configuration Utility

When you run the Reflection Suite for TCP Setup program, you're asked for a number of network settings, such as your PC's IP address, a gateway address, and so on. If you need to review or change any of this information later, you can use the Network Configuration utility.

There are two ways to open the Network Configuration utility:

- ▲ Double-click the Network Configuration icon in the Reflection program group.
- ▲ Choose the Settings option from the RNS icon menu once the TCP Connection is running.

Although many of the items you can configure with the Network Configuration utility are also displayed when you run Setup, there are several differences:

- ▲ Many optional configuration parameters cannot be modified as part of the Setup program—you must run Network Configuration to change these.
- ▲ You cannot modify your NetWare configuration using Network Configuration—you must run Setup again.
- ▲ You can reconfigure your network interface using Network Configuration—but changing from one network driver to another requires access to the new driver (on a floppy disk or a network drive).

The Network Configuration utility is detailed in the Reflection Network Series *Technical Reference*. This chapter shows you how to use Network Configuration to make two common changes: editing your Hosts file, and adding a domain name server to your network configuration.

Editing Your Hosts File

The Hosts file is a simple list that maps recognizable names to Internet addresses, the same service provided by the domain name system. You can use a Hosts file if there is no domain name server on your network. Even if there is a domain name server, you can still use a Hosts file; the Hosts file is a convenient place to store frequently used name-to-address mappings, making for more efficient network connections (since a domain name server does not need to be queried for an IP address).

For example, a Hosts file might contain the following entries:

```
183.215.12.19  gw  GW
183.215.14.83  hpcorp  HPCORP
192.17.12.12   vax1   VAX1
```

Instead of remembering and specifying the IP address of 192.17.12.12, you can specify the descriptive name that maps to that address; in this case, the host called VAX1. Because host names are case sensitive, having upper and lowercase aliases avoids confusion.

When you ran the Reflection Suite for TCP Setup program, you were asked to specify the location of your Hosts file (the default directory is \WRQNET). This file may have been provided to you by a system administrator. (The Hosts file is just a plain text file, with each host entry on its own line, and each item on a line separated by any combination of tabs and spaces; a sample Hosts file, called HOSTS.SAM, is included with the Reflection Suite for TCP).

If you didn't specify a Hosts file location during Setup, you can use the Network Configuration utility to locate this file when one becomes available. You can also use Network Configuration to create your own Hosts file, and add, change, and remove entries as you need to.

Adding an Entry to the Hosts File

If you already have a Hosts file, you can use Network Configuration to add entries to it. If you don't have a Hosts file, one is created after you add the first entry and close the Network Configuration dialog box.

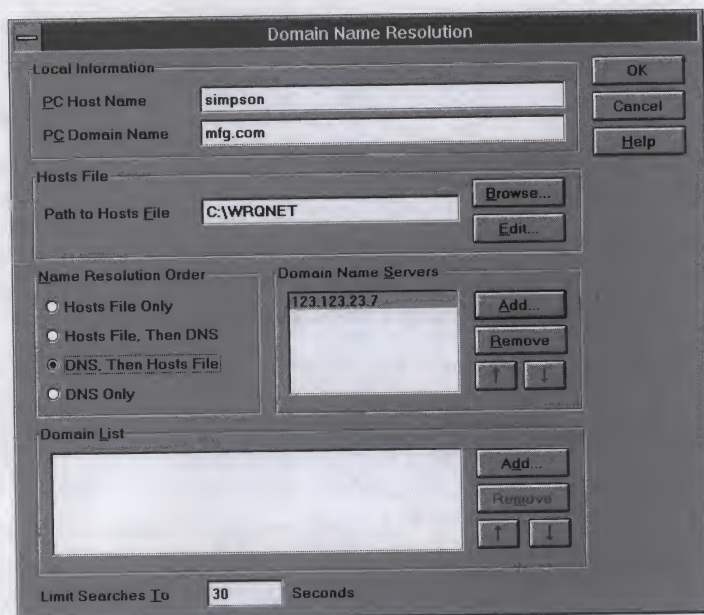
To add your own PC as an entry to the Hosts file:

1. Double-click the Network Configuration icon in the Reflection program group to start the utility.

If the Reflection Suite for TCP network software is already running and the RNS icon appears on your desktop, you can open the Network Configuration utility by choosing the Settings command from the RNS icon menu.

2. The Category scrolling list at the left provides access to a variety of network settings. The Hosts file and domain name resolution is part of the TCP/IP settings, so choose the TCP/IP icon from the Category list.
3. In the IP area of the TCP/IP Configuration window, the IP Address text box shows the IP address of your PC. You'll need this number in the next steps, so jot it down for reference.

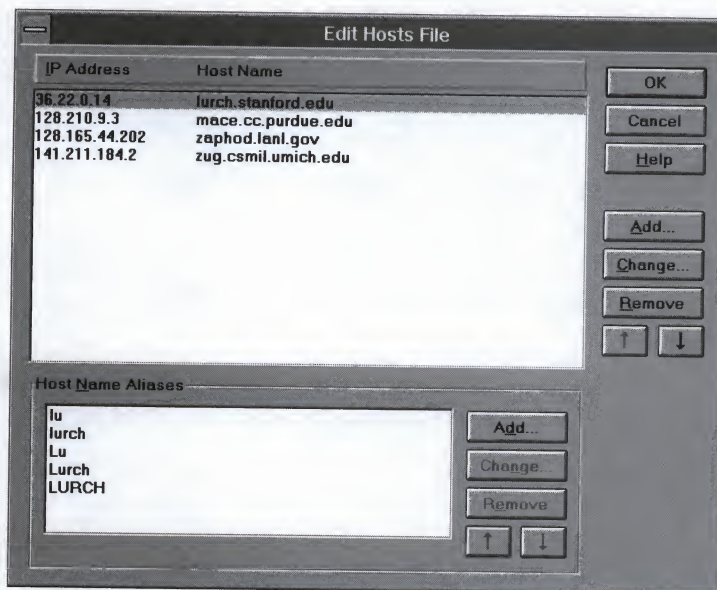
4. Choose the DNR button in the TCP/IP Configuration window. The following dialog box opens:



5. The Path to Hosts File field shows the current path to your Hosts file, which by default is the directory \WRQNET (even if you don't have a Hosts file).

To change this setting, type the path to your Hosts file, or use the Browse button to locate the file. You may have already set this path as part of Setup. This is also the path to your Protocol, Networks, and Services files, and along with the Hosts file, all of these files should be kept in the same directory. (See the Reflection Network Series *Technical Reference* for more information about these files.)

6. To add, change, or remove an entry in the Hosts file, choose the Edit button. The Edit Hosts File dialog box opens:



The top of this dialog box shows the IP address entries and the first host name listed for that IP address in your Hosts file. The bottom of the dialog box lists other names, or aliases, for the same IP address. Selecting an entry in the top of the dialog box shows the aliases associated with that IP address.

7. To add your own PC as a host entry, choose the Add button. The Host Name dialog box opens:



8. Enter the IP address of your PC, a descriptive name for it, and an alias that can also be used to specify this host. The first two items are required; aliases are optional.
9. Choose the Add button to add the entry. The Host Name dialog box closes, and the new address, name, and alias appear in the Edit Hosts File dialog box.
10. When you're done, choose OK in each of the open dialog boxes. When you choose OK to close the Network Configuration utility, a message box appears to let you know that the changes you made will not take effect until you restart the Reflection Suite for TCP networking software.

Changing and Removing Entries from the Hosts File

The same Edit Hosts File dialog box you used to add entries above is also used to change and remove Hosts file entries. To change or remove an entry, first select the entry name in the Edit Hosts File dialog box, then choose the Change or Remove button. Similarly, you can also change and remove specific aliases for a host entry, using the buttons in the Host Name Aliases area of the Edit Hosts File dialog box.

The changes you make—adding entries, changing entries, or removing entries—are not permanent until you choose OK to close the Edit Hosts File dialog box.

Adding a Domain Name Server to Your Configuration

A domain name server is a service on the network that resolves descriptive host names to IP addresses, similar to the way that the Hosts file works locally. During Setup, you were asked to provide the name of your local network domain, as well as the address of a domain name server that serves your domain.

When you attempt a network connection by specifying a host name without a full domain name extension, the domain name server is queried for the IP address of the host, and it's assumed that the host is in the local domain. For example, if your local domain is `mysite.com` and you enter the host name `aphrodite`, the domain name server is queried for the IP address of the host named `aphrodite.mysite.com`. If your domain name server cannot resolve the name, the next server that it queries is checked, until the address is found or the request fails.

If you have multiple domain name servers you want queried, you can specify as many as four domain name servers. A domain name server does not have to be on your local network as long as a route or default gateway is defined in your network configuration.

To configure domain name server information, you use the same Domain Name Resolution dialog box you used earlier to edit the Hosts file:

1. Follow steps 1–3 on page 165 to open the Domain Name Resolution dialog box.
2. In the Domain Name Servers area of the dialog box, choose the Add button to add a server.
3. In the Add Domain Name Server dialog box, enter the IP address of the domain name server.

For example, if the server with address `192.192.123.45` can act as a domain name server, enter `192.192.123.45` in the text box.

4. Use the up and down arrows to change the order in which the domain name servers are used; the domain name server listed first is queried first.
5. When you're done adding entries, choose OK in each of the open dialog boxes to save the changes. In this case, if you entered a made-up IP address above, choose Cancel to close the dialog box without saving the change.

When you choose OK to close the Network Configuration utility, a message box appears to let you know that the changes you made will not take effect until you restart the Reflection Suite for TCP networking software.

Event Viewer

The Event Viewer utility logs events reported by the Reflection Suite for TCP networking software. The Event Viewer gives system administrators an additional troubleshooting tool for viewing and analyzing network activity.

This chapter describes the types of events logged by the Event Viewer, the information provided in the event log, and how to view the event log. The *Reflection Network Series Technical Reference* explains the Event Viewer in more detail.

Event Viewer Overview

The Event Viewer can be configured to record events for a variety of severity levels and for a subset of network software modules.

Fatal errors are always logged; these may indicate that a TCP Connection module failed to load. All currently active sessions are shut down if a fatal error is logged. If a fatal error occurs, you'll see a dialog box that indicates that the Reflection Suite for TCP networking software failed to load and allows you to look at the events in the event log that are associated with this error.

For example, if your PC is configured with an IP address that's already in use on the network, the event log contains a message similar to the following:

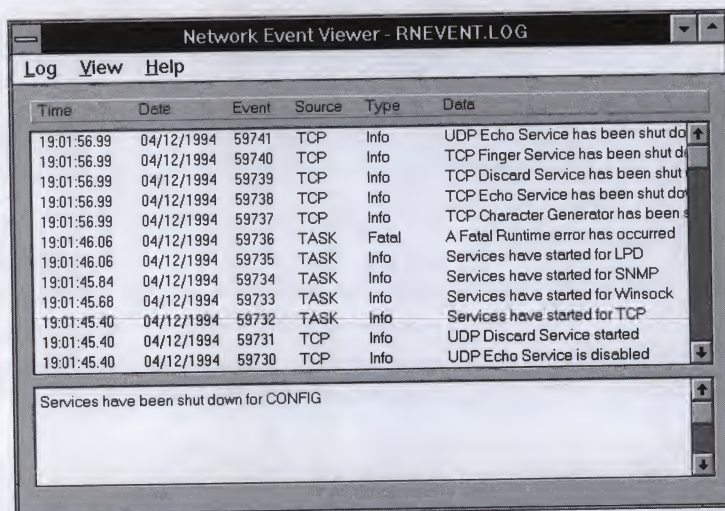
```
Address xxx.xxx.xxx.xxx is in use by 00-00-00-00-00-00
```

The network card address of the other machine with the same IP address is displayed. Assigning unique IP addresses is the responsibility of the system administrator, and this message can help the administrator resolve the problem.

Using the Event Viewer

To start the Event Viewer, double-click the Event Viewer icon in the Reflection program group.

When you open the Event Viewer, the currently configured log file is displayed. The default log file is called C:\WINDOWS\RNEVENT.LOG; you can change this with an option in the Network Event Log Settings dialog box from the Log menu. The Log menu also lets you open a different event log file, and save the current event log to a new file with a new name. Below is a sample log file.



Time	Date	Event	Source	Type	Data
19:01:56.99	04/12/1994	59741	TCP	Info	UDP Echo Service has been shut do
19:01:56.99	04/12/1994	59740	TCP	Info	TCP Finger Service has been shut d
19:01:56.99	04/12/1994	59739	TCP	Info	TCP Discard Service has been shut
19:01:56.99	04/12/1994	59738	TCP	Info	TCP Echo Service has been shut do
19:01:56.99	04/12/1994	59737	TCP	Info	TCP Character Generator has been s
19:01:46.06	04/12/1994	59736	TASK	Fatal	A Fatal Runtime error has occurred
19:01:46.06	04/12/1994	59735	TASK	Info	Services have started for LPD
19:01:45.84	04/12/1994	59734	TASK	Info	Services have started for SNMP
19:01:45.68	04/12/1994	59733	TASK	Info	Services have started for Winsock
19:01:45.40	04/12/1994	59732	TASK	Info	Services have started for TCP
19:01:45.40	04/12/1994	59731	TCP	Info	UDP Discard Service started
19:01:45.40	04/12/1994	59730	TCP	Info	UDP Echo Service is disabled

Services have been shut down for CONFIG

Some event messages are longer than the message area displayed in the upper window of the log. To see the complete message, select it; the full text is displayed in the lower window.

The following information can be shown in the Event Viewer:

Time

The time of the event. By default, the most recent event is listed first, but you can configure the Event Viewer to list events with the oldest first; choose Sort by Oldest from the View menu.

Date

The date of the event.

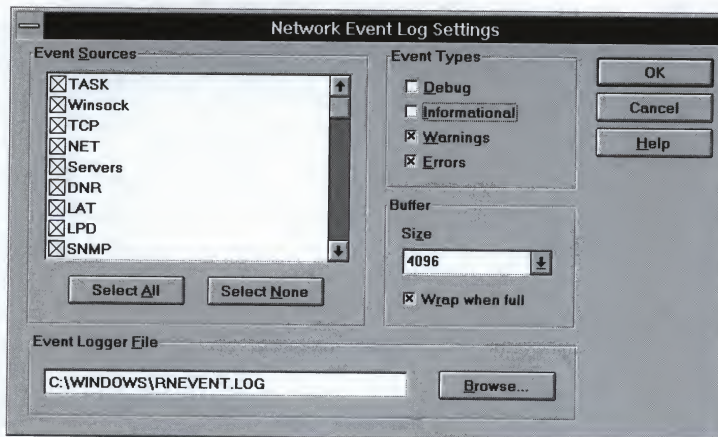
Event	An assigned number, incremented by one for each event logged.
Source	The module that produced the event. Modules are listed in the Reflection Network Series <i>Technical Reference</i> .
Type	The type of event: Debug, Informational, Warning, Errors, and Fatal. By default, all event types except Debug events are logged.
Data	The transaction message for the event.

Configuring the Event Viewer

With options in the Log and View menus, you can configure which events to log, and which events in the log to view.

Configuring Log Settings

Choose Log Settings from the Log menu to choose the events you want to capture. The Network Event Log Settings dialog box opens:



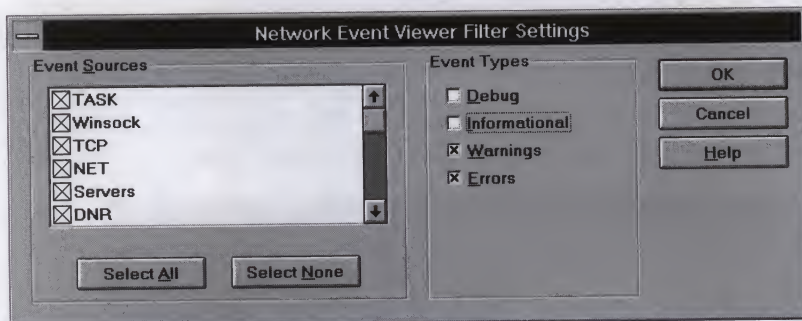
The Network Event Log Settings dialog box lets you select which modules to log events from, the type of events to log, the name of the event log file to save the events to, and the size of the event log buffer. All of these options are explained in detail in the Reflection Network Series *Technical Reference*.

Note: In general, you should avoid selecting all of the Event Type check boxes at once; this causes the Event Viewer to record a great deal of information on disk, slowing down your PC's network performance significantly. ▲

After making changes to your configuration options, choose OK to enable them.

Selecting Which Events to View

After capturing events to a log file, you can select which events in the file you want to view. To select which events to view, choose Filter Events from the View menu. The Network Event Viewer Filter Settings dialog box opens:



The filter settings in this dialog box control only which events are shown in the Event Viewer window; they do not determine which events are actually logged—you use the Log Settings command from the Log menu to select those, as described above.



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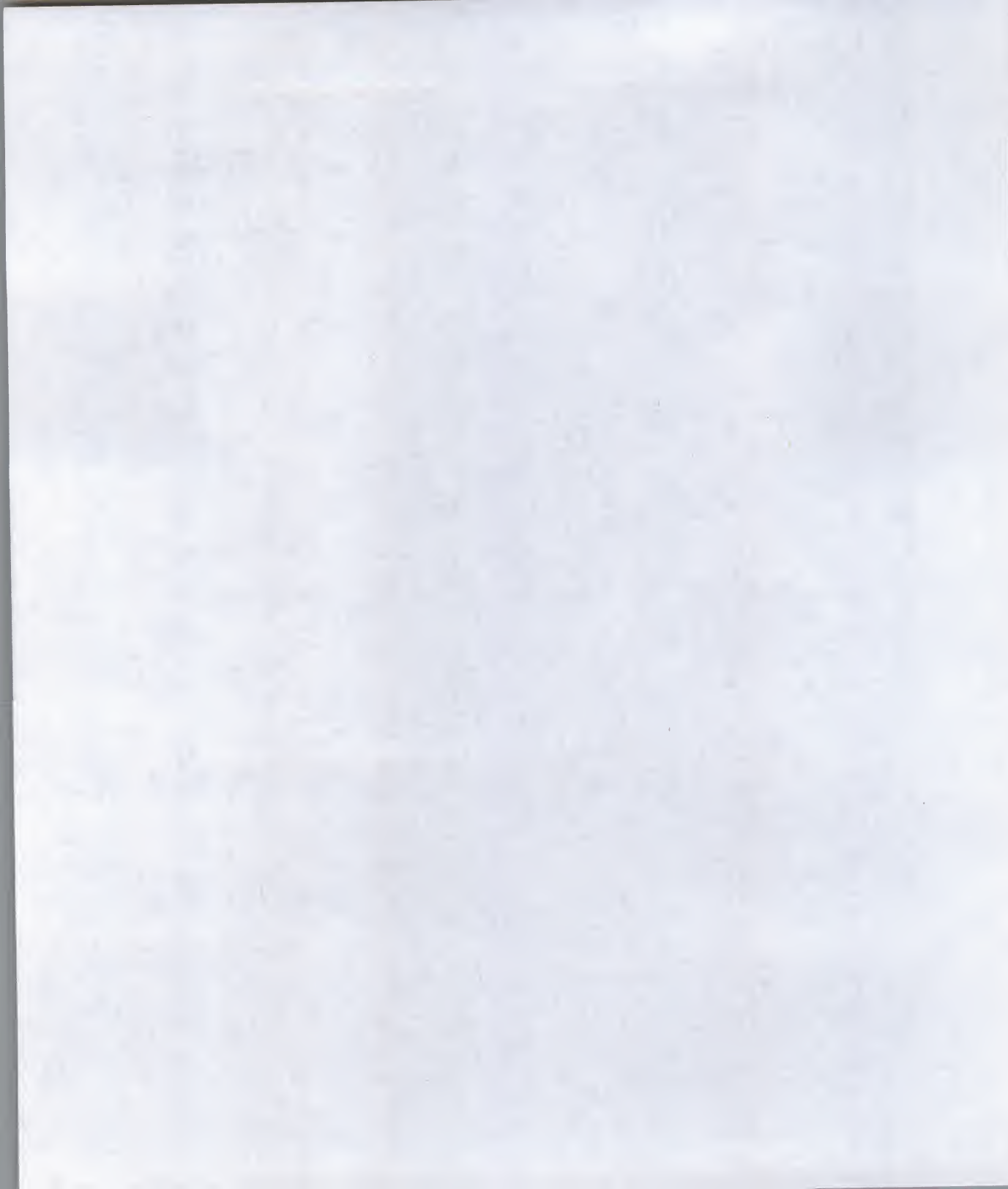
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Configuration Forms

~

*TCP Connection
(ODI & NDIS)*



TCP Connection

Your name: _____

PC network card—find out your card's interrupt (IRQ) before you start:

3Com

- ☐ EtherLink 3C501
- ☐ EtherLink II 3C503
- ☐ EtherLink 16 3C507
- ☐ EtherLink III Series (3C509, 3C579)
- ☐ EtherLink/MC 3C523
- ☐ TokenLink 3C619

Cabletron

- ☐ NDI-2000 Ether ISA
- ☐ NDI-21xx Ether ISA
- ☐ NDI-3000 Ether MCA
- ☐ NDI-31xx Ether MCA

DEC

- ☐ EtherWORKS 3 Turbo*

Hewlett-Packard

- ☐ EtherTwist 8 bit
- ☐ EtherTwist MCA (Micro Channel)
- ☐ EtherTwist Plus
- ☐ HPJ2405 EtherTwist*
- ☐ ThinLAN (part # 27210x)
- ☐ ThinLAN (part # 27250A)
- ☐ Starlan 10 Link I

IBM

- ☐ Token-Ring 16/4
- ☐ Token-Ring 16/4/A

Intel

- ☐ EtherExpress16
- ☐ TokenExpress16

Novell

- ☐ Novell NE1000*
- ☐ Novell NE2000*
- ☐ Novell NE2100*

Racal Interlan

- ☐ N15210
- ☐ N19210

SMC

- ☐ EtherCard PLUS Elite 16
- ☐ TokenCard Elite

Ungermann-Bass

- ☐ NIU pc
- ☐ NIU pc/EOTP
- ☐ NIU ps

Western Digital

- ☐ EtherCard Plus

Xircom

- ☐ Pocket Ethernet Adapter
- ☐ Pocket Ethernet Adapter II
- ☐ Pocket Ethernet Adapter III
- ☐ Pocket TokenRing Adapter

- ☐ Other Ethernet Card
- ☐ Other Token-Ring Card

*Driver is not provided by WRQ

Do you use Novell NetWare?

- ☐ Yes ☐ No

If you use NetWare on Ethernet, the packet type you use (if you don't know the answer, use the default):

- ☐ 802.2 ☐ Ethernet_II ☐ 802.3

- 1 Your IP Address.
 _____ . _____ . _____ . _____
- 2 Your Subnet Mask. If you don't have other instructions, accept the default.
 _____ . _____ . _____ . _____
- 3 The IP address of your Gateway, if you use one.
 _____ . _____ . _____ . _____
- 4 The IP address of your Domain Name Server, if you use one.
 _____ . _____ . _____ . _____
- 5 Your local PC Host name.

- 6 Your PC Domain Name may have two or three parts.
 _____ . _____ . _____
- 7 If you use a Hosts file, indicate the path.

TCP Connection

Your name: _____

PC network card—find out your card's interrupt (IRQ) before you start:

3Com

- ☐ EtherLink 3C501
- ☐ EtherLink II 3C503
- ☐ EtherLink 16 3C507
- ☐ EtherLink III 3C509
- ☐ EtherLink/MC 3C523
- ☐ TokenLink 3C619

Cabletron

- ☐ NDI-20xx Ether ISA
- ☐ NDI-21xx Ether ISA
- ☐ NDI-30xx Ether MCA
- ☐ NDI-31xx Ether MCA

DEC

- ☐ EtherWORKS 3 Turbo*

Hewlett-Packard

- ☐ EtherTwist 8 bit
- ☐ EtherTwist MCA (Micro Channel)
- ☐ EtherTwist Plus
- ☐ HPJ2405 EtherTwist
- ☐ ThinLAN (part # 27210x)
- ☐ ThinLAN (part # 27250A)
- ☐ Starlan 10 Link I

IBM

- ☐ Token-Ring 16/4
- ☐ Token-Ring 16/4/A

Intel

- ☐ EtherExpress16
- ☐ TokenExpress16

Novell

- ☐ Novell NE1000
- ☐ Novell NE2000
- ☐ Novell NE2100

Racal Interlan

- ☐ N15210
- ☐ N19210

SMC

- ☐ EtherCard PLUS Elite 16
- ☐ Token Card Elite

Ungermann-Bass

- ☐ NIU pc
- ☐ NIU pc/EOTp
- ☐ NIU ps

Western Digital

- ☐ EtherCard Plus

Xircom

- ☐ Pocket Ethernet Adapter
- ☐ Pocket Ethernet Adapter II
- ☐ Pocket Ethernet Adapter III

- ☐ Other Ethernet Card
- ☐ Other Token-Ring Card

*Driver is not provided by WRQ

Do you use Novell NetWare?

- ☐ Yes ☐ No

If you use NetWare on Ethernet, the packet type you use (if you don't know the answer, use the default):

- ☐ 802.3 ☐ Ethernet_II

Basic TCP/IP Settings

IP Addresses

1 — IP Address: 123.123.26.26

2 — Subnet Mask: 255.255.0.0

3 — Default Gateway: 123.123.23.100

4 — Domain Name Server: 123.123.23.7

Names

5 — PC Host Name: simpson

6 — PC Domain Name: mfg.com

7 — Path to Hosts File: C:\WRQNET [Browse...]

[OK] [Cancel] [Help]

1 Your IP Address.

_____ . _____ . _____ . _____

2 Your Subnet Mask. If you don't have other instructions, accept the default.

_____ . _____ . _____ . _____

3 The IP address of your Gateway, if you use one.

_____ . _____ . _____ . _____

4 The IP address of your Domain Name Server, if you use one.

_____ . _____ . _____ . _____

5 Your local PC Host name.

6 Your PC Domain Name may have two or three parts.

_____ . _____ . _____

7 If you use a Hosts file, indicate the path.





20-0107-000

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